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STATE OF ALABAMA
AGRICULTURE AND INDUSTRIES DEPARTMENT
BULLETIN

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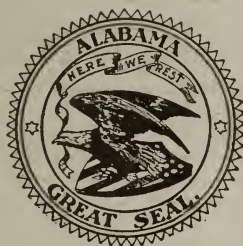
SERIAL NO. 82.

SEASONS 1918-19

FERTILIZER BULLETIN

M. C. ALLGOOD.....Commissioner of Agriculture.

I. T. QUINN.....Supervisor Division Fertilizers.



Department Bulletin No. 10

Entered as second-class matter, June 17th, 1907, at the postoffice in
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This Bulletin will be sent free to any citizen of Alabama on appli-
cation to Commissioner of Agriculture and Industries.

STATE DEPARTMENT OF AGRICULTURE AND INDUSTRIES

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*To His Excellency,
Thos. E. Kilby, Governor.*

DEAR SIR:—I present herewith Fertilizer Bulletin No. 82 covering the activities of the Department of Agriculture and Industries with reference to fertilizers and fertilizer materials for the fiscal year beginning October 1, 1918 and ending September 30, 1919.

In presenting this Bulletin, I desire to call your attention to the increased use of commercial fertilizers during the past season. There were used in this State in 1919, 297,903 tons of fertilizer against 292,410 tons during the season of 1918 or an increase over 1918 of 4,493 tons. Approximately \$15,000,000 were spent for fertilizer in Alabama this year.

In addition to the above amount of fertilizer used by the farmers of Alabama this year, thousands of tons of nitrate of soda were sold at cost by the Federal Government to the farmers of the State.

There has been a continued scarcity of potash and although domestic potash has been used to a considerable extent, yet the farmers have not been able to secure the amount of potash necessary to meet the demand of the growing crop. Especially has this been the case in the sandy lands.

A few changes in the present fertilizer law has been proposed, and these proposed changes are pending before the Legislature as this bulletin goes to press. The amendments have grown out of sections of the law that are not clear as regards certain commodities that have been placed on the market as fertilizers or an attempt has been made to class certain other commodities as fertilizers that cannot rightly be so classed. These amendments, it is hoped, will clarify the doubts that have existed in the minds of some as regards the proper classification of these products.

Another amendment gives the purchaser who pays cash for his fertilizer the same right to recover where the fertilizer purchased by him does not come up to the require-

ments as is given under the old law to the purchaser who buys his fertilizer on a credit.

Another amendment proposed authorizes the Commissioner of Agriculture and Industries to designate his assistant clerk as supervisor of the division of fertilizers. This amendment, it is believed, will better systematize State fertilizer control work, and facilitate the office work, and at the same time be beneficial both to the manufacturer and the consumer.

FINANCIAL REPORT

The following are the receipts of the department from the sale of fertilizer tags, licenses and registration fees, from October 1, 1918, through August 15, 1919:

Fertilizer tags	\$88,485.00
Bulk goods	886.88
Registration of brands.....	4,835.00
Fertilizer licenses	748.00
Miscellaneous	261.22
Total.....	\$95,216.10

STATE CHEMICAL LABORATORY

AUBURN, ALA., JULY 10, 1919.

*Hon. M. C. Allgood,
Commissioner of Agriculture and Industries,
Montgomery, Alabama.*

DEAR SIR:—I respectfully submit, herewith, a tabulated statement of results of official analyses of samples of fertilizers and fertilizing materials, collected under your direction and forwarded by your office, for the year ending July 1st, 1919.

In addition to the analyses of official samples included in this report, a number of samples, drawn by purchasers and consumers under the provisions of Section 14 of the fertilizer law and forwarded through your office, have been submitted to analysis in this laboratory and reports of such analyses have been transmitted through your department to the original sender.

This laboratory has also undertaken the analysis of a large number of samples of miscellaneous materials of possible importance or value in agriculture, such analyses having been made chiefly between the close of the preceding fertilizer season and the beginning of the present season. Among the materials examined have been specimens of limestones, marls, natural phosphates, soils, mucks, plants, etc., and reports giving results of analyses have been forwarded direct to senders.

As an introduction to the tabulated report of fertilizer analyses submitted herewith, I am presenting some information relative to the composition and sources of the chief fertilizing materials that are found upon the market, especial attention being given also to the subject of the conservation and maintenance of soil fertility.

Very respectfully,

B. B. ROSS,
State Chemist.



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THE RELATION OF SOIL FERTILITY TO CROP PRODUCTION



ALTHOUGH within the past quarter of a century our State has made great progress in its mining, metallurgical and manufacturing industries and in the extent and value of the products of these industries, the most marked advancement has been made by the State in agriculture and in live stock production. A feature of this agricultural progress which has been especially notable during the past few years has been the great increase in the production of food and forage crops, Alabama having reached the first place in the production of three or more of these important crops. Indeed, crop diversification has progressed to such an extent that the one crop system no longer prevails in any portion of the State, and the importation of grain, meat, and other food stuffs from other states has been curtailed in a very marked degree.

With agriculture still holding a place of such importance in the productive life of the State, it is especially important, in this day of increased efficiency and economy in all lines of industry, that rational and economic methods should be employed in conserving and maintaining the fertility of the soil upon which our agricultural prosperity is dependent.

Both scientific and practical experimentation has long since shown that the soil is the source from, or the medium through, which nearly all of the essential elements of plant food are derived. One of the most important and characteristic elements of vegetable life, it is true, is derived from the carbonic acid or carbon dioxide of the atmosphere, but the sources of supply of this element (carbon) are always self-replenishing and there is no need for supplementing artificially the abundant quantities of this essential constituent so regularly and continuously furnished by nature.

In addition to the supplies of carbon thus secured, the important elements of hydrogen and oxygen are furnished to the plant chiefly through the medium of water,

and although the soil supplies of this essential substance are extremely irregular and variable, the natural sources of supply are always depended upon, except where irrigation is resorted to.

A former bulletin has alluded to the capacity possessed by certain plants, particularly those termed leguminous, of taking up and assimilating free nitrogen from the atmosphere, and in the case of such crops the application of artificial nitrogenous fertilizers can be dispensed with for long periods of time without detriment to the crop in question.

There are certain essential elements of plant food, however, that the soil contains only in a limited quantity as compared with the actual requirements of the plant, and it is the province and function of fertilizers, whether crude or commercial, to supply to the soil these particular constituents which are so important to plant growth and development.

Each crop grown upon or removed from a given area of land takes away from the soil a certain proportion of its important fertilizing constituents, and although the amount of these fertilizing constituents thus removed by any single crop may appear small, a number of successive crops will diminish to a most marked extent the supply of available plant food of the average soil.

In cases where the waste products or by-products of any particular crop are returned to the soil, the drain of the crop upon the productive capacity of the soil is much lessened, and in many cases the waste products and by-products may be first fed to farm animals and a considerable proportion of the fertilizing constituents restored to the soil in the form of the manure of these animals.

In the case of such a crop as cotton, the amount of fertilizing materials withdrawn from the soil would be almost insignificant, if the cotton fibre alone were removed therefrom, as fibre is almost pure cellulose and consists chiefly of carbon, hydrogen and oxygen.

Since these elements are derived from the atmosphere and from the water of the soil, there would be no perceptible drain upon the fertilizing constituents of the soil except for the fact that the waste products and by-prod-

ucts of cotton contain considerable proportions of the three essential fertilizing elements, which, while absent from the lint, are quite essential to the formation of stems, branches, leaves, bolls, seed, etc.

In like manner, the sugar or syrup obtained from the sugar cane contains scarcely appreciable quantities of the fertilizing constituents referred to, but the tops and the leaves, as well as the refuse from the mill, contain in the aggregate no small amounts of valuable elements of plant food.

In the case of practically all other crops, the chief products from the crops, as well as the waste and by-products, remove from the soil considerable amounts of the fertilizing constituents of value, as is shown in some figures taken from a recent bulletin of the U. S. Department of Agriculture, and from data secured in this laboratory.

Manurial Constituents Contained in One Ton of Various Farm Products

<i>Farm Products</i>	<i>Nitrogen Pounds</i>	<i>Phosp^c Acid Pounds</i>	<i>Potash Pounds</i>
Timothy hay	19.2	7.2	25.2
Clover hay	39.4	8.0	35.0
Alfalfa hay	53.2	10.8	49.2
Cow pea hay	49.6	13.2	47.2
Corn fodder	17.2	7.2	21.4
Wheat straw	8.6	2.6	14.8
Wheat	34.6	19.2	7.0
Oat straw	13.0	4.4	24.4
Oats	36.2	15.4	11.4
Corn	29.6	12.2	7.2
Cotton seed	62.0	20.0	23.0
Peanut meal (containing some hulls)	93.8	22.0	27.2
Peanuts (vines and nuts) dried.....	44.0	9.6	28.2
Peanut stover	34.2	10.0	23.6
Velvet beans in the pod.....	55.6	14.4	27.4
Velvet bean hay.....	40.6	11.2	23.6
Soy beans (beans and vines) dried	39.8	8.8	32.6
Live cattle	53.2	37.2	3.4

From these data it will be seen that for each ton of these different crops harvested, there will be removed from the soil the amounts of nitrogen, phosphoric acid and potash above given, and in the case of the three grain crops, there will also be removed a considerable additional amount of these constituents in the straw, stalks, leaves, etc., of the plants.

The total amount of the above three fertilizing constituents in 1,000 pounds of lint cotton would be almost insignificant (about 10 lbs.), and yet in the quantity of cotton seed corresponding thereto (one ton), there would be contained about 62 pounds of nitrogen, about 20 pounds of phosphoric acid and 23 pounds of potash, to say nothing of the amounts of these constituents in the stems, leaves, etc., of the plant.

It has been shown in former bulletins, as a result of investigations conducted at the Experiment Station and in this laboratory, that a crop of cotton yielding 300 pounds of lint cotton per acre will remove from the soil about 38.6 pounds of nitrogen, 13.4 pounds of phosphoric acid, 31.2 pounds of potash and 41.1 pounds of lime, the composition of the whole plant being considered in this estimate, including roots, stalks, leaves, bolls, etc., as well as seed and lint.

If only the lint were removed and the remainder of the plant returned to the soil, it would appear that the land would lose but little in fertility by the growth of a number of successive crops of cotton, but the stems and leaves are slow of disintegration and decomposition, the humus suffers greatly by oxidation, much valuable fertilizing material is lost by washing and leaching by rains, and, as a result, the land will be rapidly impoverished unless the losses in fertilizing constituents are made good by the application of fertilizing materials from external sources.

The demand of the cotton seed oil mills for seed for the manufacture of meal, cake, oil, etc., has in recent years led to the shipment of a very large proportion of the seed from the farm to the mills, and as the meal and cake are in such general demand for feeding purposes, it is but seldom the case that the farmer returns to the land an

amount of cotton seed meal equivalent to the cotton seed removed.

A crop of sugar cane of 15 tons, gross, per acre would remove from the soil about 51 pounds of nitrogen, about 22.5 pounds of phosphoric acid and about 33 pounds of potash, but as such a large proportion by weight of this crop is waste or refuse material, which could be returned to the soil, a cane crop should have little tendency to exhaust or impoverish the land, except for the difficulty experienced in the disintegration of the refuse material and its thorough incorporation in the soil.

Where the land is utilized in the growing of forage crops, the products are frequently fed to stock upon the farm, and the farm yard manure, if properly collected and preserved, will restore to the soil a large proportion of the fertilizing materials removed from land by the crop itself.

Even where the greatest economy and care are practiced, a farmer can make good only a proportion of the losses of soil constituents by the application of domestic manures and by-products from the crop itself, and it becomes necessary to supplement these crude fertilizing materials with commercial manures carefully selected with reference to the needs of a given soil or crop. It is a well established fact that certain crops have well defined preferences for a given fertilizing constituent, while crops of a different character may require relatively only a small amount of that particular substance to meet their needs. For instance, the tobacco plant, upon a given soil, will require large successive applications of potash to produce a satisfactory crop, while cotton may be grown for a number of years on the same soil without the addition of potash from external sources, or else with the application of much smaller amounts of this constituent than were required for the tobacco plant. In fact, it has been demonstrated during the prevalence of the potash shortage attendant upon the European war that many of our soils were sufficiently well supplied with potash to meet the needs of a number of successive crops.

The cereals require liberal supplies of nitrogen in the soil for their full growth and development, while, on the other hand, the leguminous crops, by reason of their

capacity for assimilation of nitrogen from the air, can be successfully grown upon soils quite poor in nitrogen and from which nitrogenous fertilizers are withheld.

To simply maintain the fertility of a soil devoted to the culture of cotton, cane, or any other crop, it will be seen that the three essential fertilizing constituents must be supplied in greater or less quantities, but the object of fertilization is not merely to maintain the original productiveness of the soil, but, if possible or practicable, to bring about a continued improvement in the producing capacity of the land. The three "essential" fertilizing constituents above referred to, viz: nitrogen, phosphoric acid and potash, are not the only constituents of value derived by the plant from the soil, but these substances are supplied to the soil through the medium of artificial fertilizers for the reason that they are, as a rule, present in quite small proportions as compared with the needs of the plant, and are more readily and quickly removed from the soil by the continued cultivation of crops than the other soil constituents.

In the selection or purchase of a fertilizer, only these three constituents are considered in determining its value or adaptability, but it is important to know not only the relative amounts of these ingredients, but also the forms in which they occur, and the comparative availability of these different forms.

From the figures and data above given with regard to the composition of the leading crops, it will readily be seen that on the same soil, a given fertilizer would not be equally well adapted to all crops, nor could the same fertilizer for a given crop be used to equal advantage upon all soils. To meet the varying requirements of different soils and crops, we find upon the markets a large variety of fertilizing materials, some of which are designed to furnish all three of the essential fertilizing constituents, while quite a large number supply only one of the important fertilizing ingredients. The fertilizers of the first named class are termed complete fertilizers, while those which supply only one or two of the essential elements of plant food are known as partial manures.

CLASSIFICATION OF FERTILIZING MATERIALS

Phosphoric acid manures include the crude pulverized phosphate rock, ground bone, spent bone black, phosphatic slag, and, most important of all, acid phosphates or superphosphates.

The crude natural phosphates contain phosphoric acid in a form almost entirely insoluble in water, and hence fertilizers of this character are somewhat slow in their action, although the effects of a given application may extend over a longer period than the more soluble forms of phosphoric acid.

The insoluble phosphates, including both phosphate rock and bones, may be transformed by treatment with sulphuric acid into acid phosphates or superphosphates, and, as a result of this treatment, a large proportion of the phosphoric acid is converted into a form soluble in water and hence more readily available to the needs of the plant.

A form of phosphoric acid intermediate in composition between the water soluble and the insoluble, is termed reverted or citrate soluble phosphoric acid, and this, added to the water soluble, gives what is termed "available" phosphoric acid.

While the same forms of phosphoric acid do not give uniform results upon different soils, nevertheless, as a rule, where quick returns are desired, the acid phosphate is to be preferred on account of its high proportion of water soluble phosphoric acid, while any accompanying citrate soluble may also be utilized as plant food, though in most cases it is probably less active than the water soluble.

In this connection, it may be noted that, although the water soluble phosphoric acid will become reverted more or less rapidly in the presence of the lime, oxide of iron and alumina occurring in the soil, its ready solubility in water makes possible its easy and uniform diffusion and distribution throughout the top layer of the soil, so that in whatever direction the roots and rootlets of the plant extend themselves, a supply of phosphatic plant food will be in easy reach of them.

For many years Thomas basic slag, obtained as a by-product of steel manufacture by the basic Bessemer process, has been successfully used for fertilizing purposes in Europe, and in recent years has been introduced and used to advantage in this country. Basic slag, obtained as a by-product of the basic open hearth process of steel making, has likewise been used as a fertilizer in Europe, and some experimenters report that it appears to give results similar to those obtained from the use of Thomas slag.

Large amounts of this material are now produced annually in Alabama in connection with the manufacture of basic open hearth steel, and laboratory tests of some samples of this product show a degree of availability comparing quite well with that of the Thomas slag. A number of analyses of this material show a total phosphoric acid content in excess of 18 per cent.

Prior to the European war the chief source of the supply of potash for fertilizing purposes in this country was from the German potash mines, but since the cutting off importation of German potash, the American farmer has been compelled to employ other potash containing materials for fertilizing purposes.

Included among these materials may be mentioned hard wood ashes, ash of California kelp, potash from alunite or alum stone occurring in Utah and other Western States, flue dust from blast furnaces and cement plants, and potash salts from lakes in Western Nebraska and some of the Pacific States. Ground tobacco stems and waste from tobacco factories also contain quite considerable proportions of potash in a soluble form, together with a fair proportion of nitrogen, and these materials are used rather extensively for fertilizing tobacco and truck crops.

Foreign potash has not yet commenced to reach this country in large quantities, although some of the important German mines located in Alsace are now being opened up and operated under French control. This Alsatian potash may soon be reaching this country in considerable amounts, while later it is possible that German potash may come in under such regulations as Congress may enact.

Among the European potash manures that may be found in the market again in the near future may be mentioned sulphate and muriate of potash, kainit, hard salt and "double manure salt."

The sulphate and muriate of potash are the most concentrated forms, while kainit, the product of which is most extensively used, has only about 12 per cent. potash and contains salts of magnesium and sodium in addition.

"Hard salt" is another product of the German mines, which was formerly imported rather extensively. It contains about 16 per cent. of potash and is finding increasing employment, both for direct application and in mixed fertilizers. A double sulphate of potash and magnesia is sold under the name of "double manure salt," while carbonate of potash and magnesia finds employment to a limited extent.

Nitrogen manures include cotton seed meal, dried blood, tankage, fish scrap, nitrate of soda, sulphate of ammonia, cyanamid, etc., although the first named substance is most extensively used in the South, and constitutes the most accessible, and generally the cheapest form of organic nitrogen at the disposal of the Southern farmer.

Cotton seed contains about three per cent. nitrogen, one per cent. phosphoric acid and 1.1 per cent. potash, while the meal, being a more concentrated fertilizer, should contain about 6.25 to 6.75 per cent. of nitrogen, about $2\frac{1}{2}$ per cent. phosphoric acid, and about 1.75 per cent potash.

Nitrate of soda and sulphate of ammonia are high-grade nitrogenous fertilizers, characterized by easy solubility and ready availability, and their application should be made with great caution on account of the ease with which they are leached out from porous soils. However, upon soil underlaid with retentive clay subsoils, excellent results have followed their judicious application as fertilizers for cotton, corn, sugar-cane and other crops, while, as a top dressing for cereals they are also in great demand. Nitrate of soda is an imported product, with a nitrogen content of 15 to 16 per cent., while sulphate of ammonia, with a still higher percentage of nitrogen, is being successfully produced upon a commercial scale at several by-product coke plants in the State.

Calcium cyanamid, sometimes known as lime nitrogen, is of interest by reason of the fact that its nitrogen is derived from the atmosphere through the agency of electrical energy. It has been used in Europe and also in this country for a number of years, and the results of its employment indicate quite a fair degree of availability.

Dried blood and tankage are packing house products that supply nitrogen in somewhat concentrated forms, and the latter also contains quite a good porportion of phosphoric acid. Blood is highly esteemed on account of its ready availability, though its unit cost is, of course, higher than most other organic forms of nitrogen.

Hoof meal is another slaughter house product which contains quite a good percentage of nitrogen, though the availability of this nitrogen is relatively lower than that of other packing house products.

Waste hair and leather scrap, which, in an untreated condition, show a very low degree of availability, have in recent years been treated with sulphuric acid or superheated steam to such good advantage that the final product exhibits a very satisfactory degree of availability when subjected to both laboratory and field tests.

Fish scrap, or dried ground fish, is a by-product from the extraction of oil from fish, and contains a fair proportion of phosphoric acid as well as quite a good amount of nitrogen.

Complete fertilizers may be prepared by the manufacturer by employing an acid phosphate as the basis of the mixture, and thoroughly mixing therewith some nitrogenous fertilizing material and a potash manure.

The character of the materials employed as ingredients of the mixed fertilizer will depend upon the grade of complete fertilizer to be prepared and the relative accessibility of the raw materials. In the South, for example, cotton seed meal for a long time was a favorite source of nitrogen, but for high-grade mixed fertilizers it will be found necessary to employ blood, nitrate of soda, or sulphate of ammonia to supply the necessary quota of nitrogen.

In the same way, it will be found necessary to use sulphate or muriate of potash as an ingredient of a high-grade mixed fertilizers, while kainit or hard salt or some

organic potash manure, such as tobacco stems, can be used as a source of potash in the lower grade fertilizers.

COMMERCIAL VALUES OF FERTILIZERS

During the season just closing there has been a more marked variation in values of fertilizing materials than for a number of years past, the most notable fluctuation in values being observed in the case of potash manures. Owing to prospective importations of potash from Alsatian mines, potash values commenced to drop very appreciably several months ago, though too late to influence in a marked degree the price of potash to the ultimate consumer, a large proportion of the complete fertilizers having been manufactured by the use of potash manures purchased at the high rates which prevailed earlier in the season. For this reason the value of potash is placed at a figure much above that for which potash fertilizers could be bought at the close of the season. With the marked variations in values which have been noted from the beginning to the end of the season, it was of course impossible to adopt any scale of values that would apply accurately to conditions existing at any given date during the season. By reason also of the fact that the cost of transportation from the ports and from places of manufacture to individual points in different sections of the State show such wide variations, it is of course impossible and impracticable to adopt a single schedule of valuations which will apply uniformly in all sections of the State.

As a matter of fact, the values given will be useful chiefly in approximating the relative or comparative values of various mixed fertilizers, and in comparing the values found on analysis with the guaranteed commercial values.

The valuations employed in this bulletin for calculating the approximate relative values of fertilizers were as follows:

Available phosphoric acid (including water soluble and citrate sol. phosphoric acid)	7 cts. per lb.
Nitrogen	36 cts. per lb.
Potash	25 cts. per lb.

To compute the commercial value of fertilizer according to this scale, the valuation of available phosphoric acid per ton is obtained by multiplying the per cent. of this constituent by \$1.40. The value of nitrogen per ton is likewise ascertained by multiplying the per cent. of this constituent by \$7.20, while the per cent. of potash is multiplied by \$5.00 in order to arrive at the potash value per ton.

Take for example a fertilizer containing 7.50 per cent. of water soluble phosphoric acid, 2.00 per cent. of citrate soluble phosphoric acid (9.50 per cent. of available phosphoric acid), 2.50 per cent. of nitrogen, 2.00 per cent potash. The commercial value would be:

For the available phosphoric acid.....	9.50 x \$1.40—	\$13.30
For the nitrogen.....	2.50x\$7.20—	\$18.00
For the potash.....	2.00x\$5.00—	\$10.00
Total.....		\$41.30

ALABAMA FERTILIZER LAW

AN ACT

To regulate the registration, branding, sale, tagging and analysis of commercial fertilizers, acid phosphates, fertilizer materials and chemicals in the State of Alabama.

Section 1. *Be it enacted by the Legislature of Alabama*, That all manufacturers, jobbers and manipulators of commercial fertilizers and fertilizer materials to be used in the manufacture of the same, who may desire to sell or offer for sale in the State of Alabama, such fertilizers and fertilizer materials, shall first file with the Commissioner of Agriculture and Industries of the State of Alabama, on or before December 1st of each fiscal year, upon forms furnished by said Commissioner, the name of each brand of fertilizer, acid phosphate, fertilizer materials or chemicals which they may desire to sell in said State, either by themselves, or their agents, together with the name and address of the manufacturer or manipulator, also the guaranteed analysis thereof, stating the sources from which the phosphoric acid, nitrogen and potash are derived; provided, any person, firm or corporation organized after December the 1st, may register within one month after being organized. It shall be the duty of each such person, firm or corporation, to notify the Commissioner of Agriculture and Industries, in writing, by mail or otherwise, as may be most convenient, on day of shipment, or 24 hours thereafter, of every such shipment when exceeding five tons of fertilizer or fertilizer materials; such notice to state the brand name, number of sacks, the weight of such sacks and to whom shipped and addressed.

Section 2. Every person, firm or corporation, or association of persons shall, before offering any fertilizer or acid phosphate, or fertilizer materials for sale or exchange in the State of Alabama, first procure a license from the Commissioner of Agriculture and Industries,

authorizing such person, firm or corporation, or association of persons, to sell or exchange or deal therein. Such license shall be issued by said Commissioner on the payment of the fee of one dollar and shall expire on the 30th day of September of each year.

Section 3. That the printed report of the Commissioner or a certified copy of the record in his office showing the issuance of the license to sell or exchange fertilizer, or fertilizer materials, and to whom and when issued, is presumptive evidence of the fact that said license was issued to such person at such date. But this provision does not preclude the introduction of the license in evidence.

Section 4. All persons, companies, manufacturers, dealers or agents before selling or offering for sale in this State, any commercial fertilizer or fertilizer materials, shall brand or attach to each bag, barrel, or package, the brand name of the fertilizer, the weight of the package, the name and address of the manufacturer, and the guaranteed analysis of the fertilizer giving the valuable constituents of the fertilizer in minimum percentages only. These items only shall be branded or printed on the packages in the following order: 1. Weight of each package in pounds. 2. Brand name, and, or trade mark. 3. Guaranteed analysis. 4. Available phosphoric acid per cent. 5. Nitrogen per cent. 6. Potash per cent. 7. Name and address of manufacturer. 8. Total number of pounds of available plant food. 9. In bone meal, tankage, or other products, where the phosphoric acid is not available to laboratory methods, but becomes available on the decomposition of the products of the soil, the phosphoric acid shall be claimed as total phosphoric acid unless it be desired to claim available phosphoric acid also, in which latter case, the guarantee must take the form above set forth. In the case of bone meal and tankage, manufacturers may brand on the bag, information showing the fineness of the product; provided, it takes a form approved by the Commissioner of Agriculture and Industries. The term "available phosphoric acid" as used in this act shall be held to consist of the sum of the "water soluble" and "citrate soluble" phosphoric acid.

Section 5. If any commercial fertilizer, or fertilizer material, sold in this State, shall prove deficient in any of its ingredients as guaranteed or branded on the sacks, bags or packages containing the same, and if, by reason of such deficiency, the commercial value of such fertilizers shall fall more than five per cent. below the guaranteed total commercial value of such fertilizers, or fertilizer material, then any note or obligation given in payment therefor shall be collectible by law only for one-half of the amount of such note or obligation; provided further, that any person, firm or corporation, who sells any fertilizers or fertilizer materials that shall prove deficient in any of its ingredients as guaranteed and branded on the sacks, bags, or packages containing the same so that by reason of such deficiency the commercial value of such fertilizers shall fall more than five per cent. below the guaranteed total commercial value of such fertilizer, or fertilizer material, shall be guilty of a misdemeanor, and upon conviction shall be fined not less than one hundred nor more than one thousand dollars.

Section 6. No complete fertilizer, acid phosphate with potash, acid phosphate with nitrogen or plain acid phosphate, shall be sold in this State which contains less than 14 per cent. plant food, namely: available phosphoric acid, nitrogen calculated as ammonia, and potash, either singly or in combination; provided, that no complete fertilizer shall be sold in this State which contains less than one and sixty-five one hundredths per cent. of nitrogen equivalent to two per cent. of ammonia.

Section 7. All manufacturers and manipulators or agents representing them, who have registered their brands in compliance with Section 1 of this act, shall file with the Commissioner of Agriculture and Industries, a request for tax tags, accompanied with the legal price of same, stating that said tags are to be used upon brands of fertilizer and fertilizer materials registered in accordance with this act; whereupon it shall be the duty of the Commissioner of Agriculture and Industries to issue tags to parties applying, who shall attach a tag to each bag, barrel, or package thereof. Any tags left in possession of the manufacturer shall not be used for another season, but shall be redeemed with new tags within sixty days

after the close of the department's fiscal year, which fiscal year shall be comprised between the dates of October 1 and September 30, inclusive; provided, no such tags shall be redeemed unless returned to the Commissioner of Agriculture and Industries in unbroken and original sealed package. The color of said tags must be changed each fiscal year, and there shall not be printed upon said tags any brand name or analysis.

Section 8. It shall be unlawful for any manufacturer, mixer, or jobber, merchant, or other person, either by themselves, or through their agents, to sell or offer to sell in this State, any fertilizers or fertilizer materials that have not been registered with the Commissioner of Agriculture and Industries as required by this act. The fact that the purchaser waives the tagging and analysis thereof shall be no protection to said party selling or offering the same for sale. In contracts for the sale of fertilizers in which an excessive or fictitious price is put upon such fertilizers with the stipulation that if such fertilizers are paid for on or before a certain date they may be paid in a smaller sum than such excessive or fictitious price or in cotton or other products at an excessive or fictitious price charged for the fertilizers and the real market value shall be held a penalty; and in all such suits to enforce such contracts only the real market value of such fertilizers with the interest thereon shall be recoverable. Parol evidence is competent to show such market price, the situation of the parties and the consideration of such contracts as in cases of usury notwithstanding any writing in the premises.

Section 9. The guaranteed analysis of each, any, and every brand of fertilizer and fertilizer material must without exception remain uniform throughout the fiscal year for which it is registered and in no case even at subsequent registrations shall the grade be lowered, although the portion of available constituents may be changed so that the decrease of one constituent may be compensated for in value by the increase of the other or others. Such proposed change must first receive the approval of the Commissioner of Agriculture and Industries. The brand name or trade mark, registered by one manufacturer shall not be entitled to registration by another, and the manu-

facturer having first registered and used the said brand name and, or trade mark, shall be entitled to it, even should said brand name, or trade mark not be offered for current registration at the time. All such brand names which have heretofore been registered shall be registered annually under the provisions of this act on or before Dec. 1, of each year, and for the privileges of such registration, the person, firm or corporation or association of persons so offering the same shall pay to the Commissioner of Agriculture and Industries at the time of offering the same for registration, the sum of five dollars for each brand name registered, and no brand name shall be registered hereafter without the payment of said sum. Such names as have been once registered under the provisions of this act shall not hereafter be required to be registered again, in said year, unless the ingredients of the fertilizer or fertilizer materials to and upon which such name is used are changed; and in the event of such change the fee herein required shall be again paid by the person, firm or corporation offering the said brand name for registration. Nothing in this section shall be construed so as to debar the right of any manufacturer to establish his ownership in, and prior right of registration of any brand name, or trade mark, whether said brand name, and, or, trade mark, had been previously registered or not. Any brand name which has been registered may be changed or cancelled by writing duly signed and acknowledged or witnessed and filed in the office of the Commissioner of Agriculture and Industries.

Section 10. No person, company, dealer or agent, shall sell, expose or offer for sale, in this State, any pulverized leather, raw, steam, roasted, or in any other form, either as a fertilizer or fertilizer material, without first having made full and explicit statement of the fact and registration with the Commissioner of Agriculture and Industries, and furnishing satisfactory proof that the nitrogen is sufficiently available and valuable for the purpose for which it is sold.

Section 11. The Commissioner of Agriculture and Industries shall have the authority to establish such rules and regulations in regard to the inspection, analysis and sale of fertilizers and fertilizer materials as shall not be

inconsistent with the provisions of this act, as in his judgment will best carry out the requirements thereof.

Section 12. Nothing in this act shall be construed to restrict or avoid sales of acid phosphate or any other fertilizer materials to each other by importers, manufacturers, or manipulators, who mix fertilizers or fertilizer materials for sale, or as preventing the free and unrestricted shipments of materials to manufacturers or manipulators who have registered their brands as required by the provisions of this act.

Section 13. That the Commissioner of Agriculture and Industries shall be required to secure samples of each and every brand of fertilizers or fertilizer material offered for sale or exchange in the State of Alabama, and for this purpose he shall have authority to employ for not exceeding three months in each year upon the approval of the Governor, as many fertilizer samplers as he may deem necessary not to exceed one to each congressional district, and said samplers to secure samples of each and every brand of fertilizers or fertilizer material offered for sale or exchange in the State of Alabama. Samplers to be paid out of any moneys in the treasury to the credit of the Department of Agriculture and Industries, their salaries and expenses not to exceed \$200 per month, on requisition of the Commissioner of Agriculture. Said samples to be procured in the following manner: samples shall be drawn with such an instrument as shall secure the core from the entire length of the package from lots less than 10 packages from each sack, barrel or package, and from lots of 10 packages or more, samples to be taken from not less than 10 packages, and after thoroughly mixing the samples so drawn, he shall, by the method known as quartering, draw from such thoroughly mixed samples, two subsamples, and with them fill two sample bottles of not less than eight ounces capacity each, and shall plainly mark on each of said bottles, the number of said sample (the said number to correspond with the record kept by the Commissioner in his office), giving the name of the fertilizer or fertilizer material, the name of the manufacturer, the guaranteed analysis, place where the sample was secured, the name of the party from whom the samples were taken, and the date of sampling. That one of

said samples shall be retained by the Commissioner of Agriculture and Industries in his office, the other of said samples, marked only by said number, shall be sent to the State chemist, who shall make a complete analysis of the same, setting forth the percentages of water soluble phosphoric acid, citrate soluble phosphoric acid (or the sum total of these two components, constituting the available phosphoric acid, as may be required by the Commissioner of Agriculture and Industries), available phosphoric acid, acid soluble (or insoluble) phosphoric acid, nitrogen and potash, or such of these constituents as may be present and certify, under the same number as marked, said analysis to said Commissioner, which analysis shall be recorded as official and entered opposite the brand of fertilizer or fertilizer material, which the number represents; such official analysis of such fertilizer or fertilizer material under the seal of the Commissioner of Agriculture and Industries shall be admissible as evidence in any of the courts of this State on trial of any issues involving the merits of such fertilizer or fertilizer material.

Section 14. That it shall be lawful for any purchaser of fertilizer or fertilizer material within ten days after the receipt thereof to take in the presence of a notary public or justice of the peace, or two disinterested witnesses a sample of fertilizer in the following manner: In lots of ten sacks or less, a tea cup full which shall be taken from the top and bottom of each alternate package; and in lots from ten to fifty sacks from at least ten packages, and from lots of more than fifty packages from at least ten packages. Said samples so taken shall be thoroughly mixed upon some surface so as not to mix dirt or other foreign material with the fertilizer; then from different parts of such thoroughly mixed piles two bottles, jars or air tight receptacles of at least eight ounce capacity each shall be filled and such receptacles shall then be delivered to the notary public, the justice of the peace or witnesses and by them sealed and the name of the purchaser and notary public or justice of the peace, or witnesses shall be endorsed on the labels, one of which shall be pasted on each of said receptacles and the said purchaser and the said notary public, justice of the peace or witnesses shall certify thereon that the samples were

taken in the manner prescribed by law. One of such receptacles shall be forwarded to the Commissioner of Agriculture and Industries, by mail, postage prepaid, who shall cause the same to be analyzed by the State chemist, and all such samples shall have precedence in the order of analysis over all other analyses made by the State chemist, unless otherwise ordered by the Commissioner of Agriculture and Industries; the result of such analysis shall then be forwarded to the Commissioner of Agriculture who shall record the same in his office. One copy of such analysis under the seal of the Department of Agriculture and Industries, shall be forwarded to the seller and one copy thereof under the seal of the Department shall be forwarded to the purchaser. Such official analysis shall be admissible in evidence in any of the courts of the State on the trial of any issue involving the merits of the particular lot of fertilizer or fertilizer materials, so sampled and analyzed.

Section 15. That the term "fertilizer material" used in this bill does not include common lime, land plaster, cotton seed meal, ashes, or common salt not in combination and the term "filler" when used in this bill, shall be understood to mean any foreign or make weight material used in the manufacture of any complete fertilizer.

Section 16. Any one selling or offering for sale any fertilizer or fertilizer materials without first having complied with any of the provisions of this act, shall be guilty of a misdemeanor, and, upon conviction thereof, shall be fined not less than two hundred and fifty, nor more than one thousand dollars.

Section 17. That all laws and parts of laws in conflict with the provisions of this act be and the same are hereby repealed.

Approved August 14th, 1907.

AN ACT

TO AMEND SECTIONS 28, 29, AND 32 OF THE CODE
OF ALABAMA, 1907.

Section 1. *Be it enacted by the Legislature of Alabama,* That section 28 of the Code of Alabama, 1907, be

and the same is hereby amended to read as follows: Section 28 (382). Tags supplied by auditor and account kept against commissioner.—Upon the receipt of such requisition the auditor must have printed from a suitable design, registered in the United States patent office, in the name of the Governor of the State of Alabama, the required number of tags of suitable material and numbered consecutively on the back beginning with number one, with proper fastenings for attaching the same to packages, bags, or barrels of fertilizers; and that shall be printed thereon the words, "Guaranteed," and a fac simile signature of the auditor and commissioner, with the year and season in which the tags are to be used, and there shall also be printed thereon "Alabama Tag Tax," "Three Cents," to be attached to packages, bags or barrels of fertilizers weighing two hundred pounds and "Alabama Tag Tax." "One and One-half Cents," to be attached to packages, bags or barrels of fertilizer weighing one hundred pounds or less. The auditor as soon as practicable, must deliver these tags to the Commissioner, at the capitol, taking his receipt therefor; and the auditor shall keep a true and correct account with the Commissioner, charging him with all tags furnished at the price of three cents each for tags to be attached to packages, bags or barrels of fertilizer weighing two hundred pounds, and one and one-half cents each for tags to be attached to packages, bags or barrels of fertilizer weighing one hundred pounds or less, and shall credit him with all legally accounted for at the same price at which they were charged. The commissioner must report to the auditor at the end of each month the number of tags of each denomination sold during the month, giving the number of same, and credit therefor must be given as above provided.

Section 2. That section 29 of the Code of Alabama, 1907, be and the same is hereby amended to read as follows: Section 29 (383). Surplus tags to be destroyed at end of each season and credit therefor given. All tags remaining in the hands of the commissioner at the end of the year, or season, must be destroyed in the presence of the treasurer, secretary of State, the attorney general; and the certificate of these officers showing the number

of tags so destroyed, and the year and season for which they were intended entitles the Commissioner to credit therefor on his account with the auditor at the rate at which he was charged for each tag so destroyed, as provided in section 1 of this act.

Section 3. That section 32 of the Code of Alabama, 1907, be and the same is hereby amended to read as follows: Section 32 (386) (141). Issue and limit of tags. —All manufacturers and manipulators, or agents representing them, who have registered their brands in compliance with this article, shall file with the Commissioner of Agriculture and Industries a request for tags, accompanied with legal price of same, stating that said tags are to be used upon brands of fertilizers and fertilizer materials registered in accordance with this article, whereupon the said commissioner shall issue tags to the persons applying, who shall attach one three-cent tag for each two hundred pounds in each bag, barrel or package thereof. Any tags left in the possession of the manufacturer shall not be used for another season, but shall be redeemed with new tags within sixty days after the close of the department's fiscal year, which fiscal year shall be comprised between the dates of October 1, and September 30, inclusive; provided, no such tags shall be redeemed unless returned to the Commissioner of Agriculture and Industries in unbroken original sealed packages. The color of said tags must be changed each fiscal year, and there shall be a different color for each of the denominations provided for, and there shall not be printed upon said tags any brand, name or analysis. Any sale, or exchange, of fertilizers not so tagged is void.

Approved April 8, 1911.

No. 605.)

(H. 1408—Youngblood.

AN ACT

TO AMEND SECTION 43 OF THE CODE OF ALABAMA, 1907, (RELATES TO SECURING SAMPLES OF FERTILIZERS).

Be it enacted by the Legislature of Alabama:

1. That section 43 of the Code of Alabama, 1907, be and the same is hereby amended so as to read as follows:

"43. (391) (193). *Samples; how produced.*—The commissioner of agriculture and industries shall be required to secure samples of each and every brand of fertilizer or fertilizer material and of each and every brand of feeds and to carry into execution the provisions of the produce law. In order to carry out these purposes he may employ two fertilizer samplers and feed samplers who shall be trained men in the sciences or the practice of agriculture, and, in addition to securing samples of each and every brand of fertilizer material and feeds offered for sale or exchange in Alabama, to assist in carrying out the provisions of the produce law, and may be required to hold farmers institutes over the State and to perform such other duties as the commissioner of agriculture and industries may require, and said samplers shall receive samples of each and every brand of fertilizers or fertilizer materials and every brand of feeds offered for sale or exchange in the State of Alabama. Samplers to be paid out of any moneys in treasury to the credit of the department of agriculture and industries, their salaries to be fifteen hundred dollars per annum and expenses, payable monthly, which shall be verified by affidavit and approved by the commissioner of agriculture and industries. Said samples of fertilizer to be procured in the following manner: Samples drawn with such an instrument as shall secure the core from the entire length of the package from lots less than ten packages from each sack, barrel or package, and from lots of ten packages or more, samples to be taken from not less than ten packages, and after thoroughly mixing the samples so drawn, he shall by the method known as quartering, draw from such thoroughly mixed samples, two sub-samples, and with them fill two sample bottles of not less than eight ounces capacity each, and shall plainly mark on each of said bottles the number of said sample, said number to correspond with the record kept by the commissioner in his office, giving the name of the fertilizer or fertilizer material, the name of the manufacturer, the guaranteed analysis, place where the sample was secured, the name of the party from whom the sample was taken, and the date of the sampling. One of said samples shall be retained by said commissioner of agriculture and industries in his

office, the other of said samples, marked only by said number, shall be sent to the State chemist, who shall make a complete analysis of the same, setting forth and the percentages of water, soluble phosphoric acid, citrate soluble, phosphoric acid (for the sum together of these two components, constituting the available phosphoric acid, as may be required by the commissioner of agriculture and industries), available phosphoric acid, acid soluble (or insoluble) phosphoric acid, nitrogen and potash, or such of these constituents as may be present, and certify under the same number as marked, said analysis to said commissioner, which analysis shall be recorded as official and entered opposite the brand of fertilizer or fertilizer material, which the number represents; such official analysis of such fertilizer or fertilizer material under the seal of the Commissioner of Agriculture and Industries shall be admissible as evidence in any of the courts of this State on trial of any issue involving the merits of such fertilizer or fertilizer material.

Approved September 22, 1915.

AN ACT

To regulate the sale and offering for sale of fertilizers and fertilizer materials, to require same to be plainly tagged and marked as to the chemical elements thereof and the source of the same, and to provide a penalty for the violation thereof.

Be it enacted by the Legislature of Alabama:

Section 1. That it shall be unlawful for any person, firm or corporation in this State, to sell or offer for sale any fertilizer or fertilizer material when the same is packed in sacks or bags unless plainly tagged, in letters and language easily understood, showing the weight of the package, the name and address of the manufacturer, the chemical analysis of the contents and the source from which the several chemical elements therein are obtained, (and the percentage of Nit of Soda Sulp. of Amoi and cyan-amid used.) Provided that this does not apply to

merchants or retail dealers who have fertilizers on hand or in transit shipped prior to the time this law becomes effective.

Section 2. Violation of the provisions of this act is hereby declared a misdemeanor, punishable by a fine from five hundred to one thousand dollars, and each sale or offer for sale is hereby declared to be a separate offense hereunder.

Section 3. This act shall be of force and effect 60 days after the passage of this bill. All laws and parts of laws in conflict with this bill are hereby repealed.

Approved July 12, 1919.

FERTILIZER LICENSES FOR 1918-1919

<i>Name.</i>	<i>Postoffice</i>	<i>License No.</i>
Armour Fertilizer Works.....	New Orleans, La.....	1
American Aricultural Chemical Co.....	Montgomery, Ala.	6
Adair, A. D. & McCarty Bros., Inc.....	Atlanta, Ga.	10
Alabama Chemical Co.....	Montgomery, Ala.	11
Alabama Corn Mills Co.....	Mobile, Ala.	30
Agee, R. H. & W. C.....	Selma, Ala.	40
Arnold, W. B.....	Clio, Ala.	54
Alabama Oil & Guano Co.....	Opelika, Ala.	66
Armour Fertilizer Works.....	Nashville, Tenn.	68
Atkins, V. B. Grocery Co.....	Selma, Ala.	74
Aliceville Oil & Mfg. Co.....	Aliceville, Ala.....	122
Adams & Sessions.....	Enterprise, Ala.....	124
Awbrey, J. J.....	Roanoke, Ala.....	133
Ashurst, J. H.....	East Tallassee, Ala.....	151
Avery, Milton	Talladega, Ala., R. F. D.....	159
Atlantic Chemical Corporation.....	Montgomery, Ala.	160
Albany Phosphate Co.....	Albany, Ala.....	194
Ashland Oil Mill & Fert. Co.....	Ashland, Ala.	204
Andress, W. J.....	Peterman, Ala.	239
Acree, O. A. C.....	Newton, Ala.	251
Alabama Warehouse Co.....	Montgomery, Ala.	296
Aldridge, R. E.....	Boaz, Alabama	299
Austin-Gentry Lumber Co.....	Coffee Springs, Ala.....	312
Atmore Milling & Elevator Co.....	Atmore, Ala.	321
Atmore Trading Co.....	Atmore, Ala.	325
Allen, Sim	Alexander City, Ala.....	349
Allen, R. W. & Co.....	LaFayette, Ala.	364
Acree Bros.	Dadeville, Ala.	428
Andrews, A. E.....	Louisville, Ala.	460
Alexander, G. M.....	Guin, Ala.	513
Allen Bros.	Ashland, Ala.	545
Atkins & Owen.....	Heflin, Ala.	589
Arnold, E. C.....	Abbeville, Ala.	630
Andress, W. G.....	Beatrice, Ala.....	692
Allison, B. K. & B. L.....	Minter, Ala.	701
Asa Frost & Son.....	Phil Campbell, Ala.....	744

<i>Name.</i>	<i>Postoffice</i>	<i>License No.</i>
Birmingham Fertilizer Co.....	Birmingham, Ala.	20
Brock & Wilbanks.....	Collinsville, Ala.....	22
Beeland Brothers Mercantile Co.....	Greenville, Ala.	24
Boligee Gin & Cotton Co.....	Boligee, Ala.	34
Brantley Bros.	Troy, Ala.	102
Burt, J. M.....	Opelika, Ala.	108
Brown, W. S. Mercantile Co.....	Birmingham, Ala.	113
Boyd & Company.....	Elba, Ala.	139
Burkart, C. & Co.....	Hanceville, Ala.	149
Butler Cotton Oil Co.....	Albertville, Ala.....	168
Bank of Hurtsboro.....	Hurtsboro, Ala.	170
Brice, Vernon R.....	Altoona, Ala.	176
Books, W. H.....	Atmore, Ala.	179
Bynum, W. H.....	Boaz, Ala.	183
Bates, C. L.....	Henagar, Ala., Route 1.....	184
Boon, W. R.....	Georgiana, Ala.	189
Bowman, J. J.....	Dutton, Ala., Route 1.....	198
Buck, F. W.....	Bessemer, Ala.	230
Brown, F. H.....	Maplesville, Ala.	237
Butler Bros.	New Hope, Ala.....	240
Bates, C. C.....	Union Springs, Ala.....	246
Bradley & Edwards.....	LaPine, Ala.....	248
Blackburn, John W.....	Fayette, Ala.	250
Bass Lightfoot & Co.....	Brundidge, Ala.	264
Brundidge Fertilizer Co.....	Brundidge, Ala.	265
Bond, D. L.....	Newville, Ala.	270
Bond, L. L.....	Newville, Ala.	271
Baldwin County Produce Corp.....	Foley, Ala.	290
Butler & Rousseau.....	Paint Rock, Ala.....	293
Berrey, W. W. & Son.....	Orrville, Ala., Route 1.....	298
Bland, C. W.....	Abbeville, Ala.....	302
Barber, C. M. & J. N.....	Haleyville, Ala.	314
Bean & McMurray.....	Heflin, Ala.	320
Ball, W. J.....	Scottsboro, Ala.	332
Bowen, R. L.....	Russellville, Ala.	338
Bessemer Grocery Co.....	Bessemer, Ala.	339
Banks & Davis.....	Hurtsboro, Ala.	344
Brown, J. W.....	Sylacauga, Ala.	351
Barfield & Steed.....	Lineville, Ala.	353
Belcher, T. L. & Co.....	Roanoke, Ala.	358
Bridges, W. J.....	Notasulga, Ala.	363

<i>Name.</i>	<i>Postoffice</i>	<i>License No.</i>
Burleson, J. W.....	Guin, Ala., Route 1.....	365
Barnard, T. H.....	Union Springs, Ala.....	157
Eyrd, J. B.....	Enterprise, Ala.	384
Baccus, John W.....	Glen Allen, Ala., Route 4.....	391
Black, J. A.....	Luverne, Ala.	397
Bradstreet Mercantile Co.....	Andalusia, Ala.	400
Brown, W. D. Supply Co.....	Owassa, Ala.	444
Butler, John C.....	Huntsville, Ala.	461
Blake, J. H.....	Blocton, Ala., Route 2.....	471
Brice, J. A. & Son.....	Oneonta, Ala.	481
Barnes, J. J.....	Ariton, Ala.	486
Boutwell & Boluck.....	Elba, Ala.	487
Beck, D. R.....	Talladega, Ala.	490
Bains Bros.	Cleveland, Ala.	516
Bains Bros.	Blountsville, Ala.	517
Bell, J. J.....	Floral, Ala.	524
Burton Boyd Merc. Co.....	LaFayette, Ala.	531
Bartlett, John T.....	Collinsville, Ala.	532
Burrow, J. W. & Son.....	Lineville, Ala.	540
Black, R. L.....	Ashland, Ala.	543
Brasswell, J. R. & E. W.....	Pleasant Gap, Ala.	553
Burnett-Hurley Mercantile Co.....	Cedar Bluff, Ala.....	557
Bradford, J. F.....	Warrior, Ala.	562
Boyd, R. M.....	Tuskegee, Ala.....	564
Blauset, R. L.....	Sulphur Springs, Ala., R. 1.....	578
Byars, R. M.....	Moulton, Ala.	629
Brown, L. R.....	Sulphur Springs, Ga., R. 1.....	657
Bonds, D.	Haleyville, Ala.	662
Brown, J. A.....	Heflin, Ala., Route 2.....	673
Bowden, C. P.....	Gordon, Ala.	676
Barrett Co.	New York, N. Y.....	709
Baccus Mercantile Co.....	Glen Allen, Ala.....	710
Bevell Mercantile Co.....	Jackson, Ala.	711
Busey, B. H. & Son.....	Yellow Pine, Ala.....	732
Benson, J. B.....	Scottsboro, Ala.....	741
Bellenger, W. C.....	Gadsden, Ala.	742
Bryant, G. W.....	Stevenson, Ala.	748
Chickamauga Fertilizer Works.....	Chickamauga, Tenn.	2
Centerville Gin & Cotton Co.....	Centerville, Ala.	33
Cedar Creek Stores Co.....	Brewton, Ala.	38

<i>Name.</i>	<i>Postoffice</i>	<i>License No.</i>
Coweta Fertilizer Co.....	Montgomery, Ala.	60
Cothran & Co.....	Selma, Ala.	73
Cleveland Bros.	Mobile, Ala.	89
Capitol Fertilizer Co.....	Montgomery, Ala.	125
Cliett, M. J.....	Childersburg, Ala.	128
Chandler, E. C.....	Searight, Ala.	129
Camp Hill Gin Co.....	Camp Hill, Ala.	140
Columbia Guano Co.....	Montgomery, Ala.	161
Craft, W. J.....	Dawson, Ala.	163
Crawford, J. N.....	Abbeville, Ala.	180
Coosa River Fertilizer Co.....	Wetumpka, Ala.	229
Clay County Oil Mill & Fert. Co.....	Lineville, Ala.	252
Carroll & Sons.....	Ozark, Ala.	257
Carroll, J. S. Mercantile Co.....	Troy, Ala.	260
Cochran & Russell.....	Dawson, Ala.	272
Culp & Edwards.....	Clanton, Ala.	279
Cotton States Fertilizer Co.....	Macon, Ga.	280
Cosper, R. E.....	Starrett, Ala.	281
Collins, J. W.....	Escatawpa, Ala.	306
Carney, W. M.....	Atmore, Ala.	327
Christian & Faucett.....	Northport, Ala.	340
Carlisle, M. W.....	Roanoke, Ala.	356
Cox, L. O.....	Boaz, Ala.	369
Clanton Mercantile Co.....	Clanton, Ala.	373
Creel, J. W.....	Hayleyville, Ala.	377
Cieverdon, W. I.....	Summerdale, Ala.	387
Cash Store	Geneva, Ala.	389
Cody Mercantile Co.....	Luverne, Ala.	402
Colquitt Bros.	Brantley, Ala.	404
Caddon, J. H.....	Benton, Ala.	466
Crow, B. T.....	Goodwater, Ala.	478
Capper, J. W.....	Newville, Ala.	502
Crosswhite, G. W.....	Hayleyville, Ala.	515
Casper & Cull.....	Childersburg, Ala.	567
Capps, J. T.....	Capps, Ala.	570
Carnes & Whitten.....	Boaz, Ala.	574
Cowden, Rasco & Co.....	Oneonta, Ala.	577
Chandler, H. F. & Co.....	Clanton, Ala.	580
Cook, G. W.....	Heflin, Ala.	588
Carrollton Produce & Whse. Co.....	Carrollton, Ala.	597
Curb, J. T. & W: E.....	Marion, Ala.	599

<i>Name.</i>	<i>Postoffice</i>	<i>License No.</i>
Carlisle, Brooks	Loachapoka, Ala.	610
Cassels, C. G.	Gadsden, Ala.	621
Coleman, W. H. & Co.	Livingston, Ala.	641
Cloud, King & Son.	Leighton, Ala.	655
Chum, E. K. & Co.	Lacy's Spring, Ala.	697
Christenberry, R. E.	Marion, Ala.	707
Clark, G. W.	Kinston, Ala., Route 1.	722
Centre Mercantile Co.	Centre, Ala.	728
Carter, J. P.	Pyrition, Ala.	730
Crick, Ed. G.	Huntsville, Ala.	749
Dothan Guano Co.	Dothan, Ala.	3
Dothan Chemical Co.	Dothan, Ala.	13
Decatur Fertilizer Co.	Decatur, Ala.	31
Dumas, Greer & Co.	Mobile, Ala.	88
Davis, W. E.	Opelika, Ala.	120
Dean & Moore.	Eufaula, Ala.	126
Danzey, Johnson & Daugey.	Abbeville, Ala.	143
Davis Warehouse Co.	Columbus, Ga.	154
Durham, L. A.	Fort Payne, Ala.	181
Dawkins, W. T.	Abbeville, Ala.	193
Dearman, J. A.	Cuba, Ala.	215
Davis & Walker.	Millport, Ala.	226
Dowling, H. H. & Bro.	Pinckard, Ala.	268
Davis & Brittain.	Rock Run Station, Ala.	394
Dearing Orman Merc. Co.	Russellville, Ala.	430
Deer, W. P. & Sons.	Claiborne, Ala.	431
Dennis, J. N.	Clanton, Ala.	434
Dyer, W. C.	Stanton, Ala.	436
Duke, B. W. & Sons.	Gadsden, Ala.	439
Drake Mercantile Co.	Haleyville, Ala.	468
Deramus, D. I. Estate.	Verbena, Ala.	492
Dunn, S. J.	Wadley, Ala.	537
Douglas, F. M.	Luverne, Ala.	561
Disroon, H. T. & Co.	Oxford, Ala.	587
Davis Bros.	Gordo, Ala.	613
Duke, Chas. & Griffin.	Attalla, Ala.	623
Duke & Co.	Attalla, Ala.	624
Dunaway, J. E.	Orrville, Ala.	666
Bailey, F. S. & Sons.	Tunnell Springs, Ala.	689
Dees, H. L.	Repton, Ala.	698

<i>Name.</i>	<i>Postoffice</i>	<i>License No.</i>
Dunning, R. G. General Mdse.....	Thomasville, Ala.	712
Dawsey, J. R.....	Ashford, Ala.	727
Dodd, L. L. & Co.....	Lynn, Ala.	729
Davenport, N. S. Co., Inc.....	Valley Head, Ala.....	747
Empire Guano Co., The.....	Nashville, Tenn.	51
Ellis, J. M. Sons & Co.....	Union Springs, Ala.....	78
Enterprise Fertilizer Works.....	Enterprise, Ala.	175
Ellison, W. L.....	Altoona, Ala., Route 3.....	199
Evergreen Milling Co.....	Evergreen, Ala.	223
Empire Cotton Oil Co.....	Atlanta, Ga.	228
Eddins, J. R.....	Peterman, Ala.	234
Edmondson, R. Q. & Bro.....	Eufaula, Ala.	253
Espy, Curtis	Midland City, Ala.....	258
Elliott, E. M.....	Moundville, Ala.	295
Eufaula Mill & Elevator Co.....	Eufaula, Ala.	307
English Mercantile Co.....	Elba, Ala.	484
England, Watson & Love.....	Lincoln, Ala.	512
Espy Mercantile Co.....	Headland, Ala.	521
Evans, C. M.....	Falkville, Ala.	674
Evers, L. H. & J. J.....	Repton, Ala.	695
Eddins, C. E.....	Roy, Ala.	715
Furman Fertilizer Works.....	Atlanta, Ga.	4
Farmers Cotton Oil & Fert. Co.....	Huntsville, Ala.	5
Farmers Fertilizer Co.....	Montgomery, Ala.....	12
Farmers Union Warehouse Co.....	Boaz, Ala.	19
Faircloth-Segrest Co.	Slocumb, Ala.	86
Fox Chemical Co.....	Louisville, Ky.	97
Federal Chemical Co.....	Louisville, Ky.	100
Farmers Alliance Co.....	Opelika, Ala.	107
Fielder, J. B.....	Loachapoka, Ala.	111
Farmers Mercantile Co.....	Greenville, Ala.....	118
Fruitdale Farmers Union.....	Fruitdale, Ala.	135
French, J. W.....	Gordo, Ala.	164
Faulk, J. B.....	Monroeville, Ala.	172
Foley Fertilizer Co.....	Foley, Ala.	233
Farmers Trading Co.....	Samson, Ala.	236
Folmar, W. B. & Sons.....	Troy, Ala.	256
Farmers' Mutual Co-op. Ass'n.....	Foley, Ala.	291
Fricks, W. L.....	Section, Ala., Route 1.....	319

<i>Name.</i>	<i>Postoffice</i>	<i>License No.</i>
Fairecloth, G. E.....	Wallace, Ala.	323
Farrar, W. D.....	Canoe, Ala.	328
Forest Home Mercantile Co.....	Forest Home, Ala.	337
Farmers & Merchants Bank.....	Hurtsboro, Ala.	343
Finley, H. D.....	Pollard, Ala.	407
Flurry, A. G.....	Camp Hill, Ala.....	416
Fricks, W. L.....	Section, Ala.	425
Faulkner, J. H.....	Phil Campbell, Ala.....	447
Foster, W. T.....	Georgiana, Ala.	449
Flowers Guano Co.....	Dothan, Ala.	472
Farmers Supply Co.....	Town Creek, Ala.....	522
Franklin, W. H.....	Jacksonville, Ala.....	584
Farmers Warehouse	Marion, Ala.	594
Funderburk, L. C.....	Carrollton, Ala.	604
Farmers Union Store.....	Hartselle, Ala.	617
Farmers Union W. & S. Co.....	Gadsden, Ala.	636
Faulk, T. S.....	Samson, Ala.	684
Fricke, John W.....	S. Guntersville, Ala.....	743
Grasselli Chemical Co.....	Birmingham, Ala.	14
Grasselli Chemical Co.....	Selma, Ala.	15
Grasselli Chemical Co.....	Dothan, Ala.	16
Grasselli Chemical Co.....	Gadsden, Ala.	17
Gordo Gin & Cotton Co.....	Gordo, Ala.	35
Georgia Chemical Works.....	Montgomery, Ala.	59
Gadsden Fertilizer Co.....	Gadsden, Ala.	80
Globe Fertilizer Co.....	Louisville, Ky.	99
Georgia Fertilizer Co.....	Columbus, Ga.	130
Gray, Jr., William.....	Dadeville, Ala.	138
Gaylesville Mercantile Co.....	Gaylesville, Ala.	144
Griffith, T. V.....	Tuscaloosa, Ala.....	187
Greene County Warehouse Co.....	Eutaw, Ala.	225
Gamble Bros.	Delmar, Ala.	241
Graves & Dawson.....	Waverly, Ala.	243
Gillespie, C. P.....	Madison, Ala.	300
Gilliland, J. S.....	Goodwater, Ala.	382
Gant, W. H.....	Pisgah, Ala.	424
Garrett, W. W.....	Uriah, Ala.	445
Graves, W. D.....	Alexander City, Ala.....	477
Gilchrist, R. M.....	Brantley, Ala.....	500
Grady, J. W.....	Stroud, Ala.	501

<i>Name.</i>	<i>Postoffice</i>	<i>License No.</i>
Gulledge, F. A.....	Verbena, Ala.	506
Gulledge Bros.	Verbena, Ala.	510
Goddard Bros.	Oneonta, Ala.	526
Gay & Gibson.....	Lineville, Ala.	549
Griffin & Son.....	Lineville, Ala.	550
Green & Orr.....	Lineville, Ala.	551
Green, A. F.....	Guin, Ala.	556
Gross Mercantile Co.....	Childersburg, Ala.	568
Gold Hill Supply Co.....	Gold Hill, Ala.	575
Griffin, Lee	LaFayette, Ala.	606
Griffin & Duke.....	Gadsden, Ala.	622
Green Mercantile Co.....	York, Ala.	640
Greer, Len	Anniston, Ala.	661
Gregory Mercantile Co.....	Linden, Ala.	667
Gumes, Mrs. P. P.....	McWilliams, Ala.	694
Gunn, Alex	Thomasville, Ala.	718
Huntsville Warehouse Co.....	Huntsville, Ala.	27
Home Mixture Guano Co.....	Columbus, Ga.	55
Haleyville Oil & Fertilizer Co.....	Haleyville, Ala.	64
Hooper, C. W. & Co.....	Selma, Ala.	75
Harris Grain Company.....	Mobile, Ala.	92
Henderson, James H.....	Shorter, Ala.	112
Hoog, J. G.....	Fruitdale, Ala.	115
Houston Guano Co.....	Dothan, Ala.	136
Hurtsboro Guano Co.....	Hurtsboro, Ala.	146
Humphrey, Foy & Co.....	Eufaula, Ala.	147
Hale, W. D.....	Scottsboro, Ala.	165
Hatter, D. J. & Son.....	Drewry, Ala.	171
Houston, J. L.....	Clayton, Ala.	177
Hill, W. T.....	Hillsboro, Ala., Route 1.....	201
Headland Fertilizer Works.....	Headland, Ala.	202
Home Guano Co.....	Dothan, Ala.	209
Henderson & Hill.....	Brantley, Ala.	242
Henderson & Bashinsky.....	Troy, Ala.	259
Henderson, Chas. & Co.....	Troy, Ala.	267
Howard, J. W.....	Phil Campbell, Ala.	278
Henderson, Fox & Sons.....	Troy, Ala.	282
Harris, E. A.....	Kellyton, Ala.	286
Holley, F. M.....	Abbeville, Ala.	287
Harvey Seed Co.....	Montgomery, Ala.	310

<i>Name.</i>	<i>Postoffice</i>	<i>License No.</i>
Harris, G. N.....	Atmore, Ala.	324
Haynes, J. E.....	Scottsboro, Ala.	334
Huston, Pinkey	Garland, Ala.	336
Hudson, H. E.....	Monroeville, Ala.	347
Hester, C. M.....	Roanoke, Ala.	378
Henderson, J. Robert.....	Gaylesville, Ala., Route 1.....	381
Henderson, T. E.....	Andalusia, Ala.	383
Holladay, H. H.....	Brewton, Ala.	406
Hollingsworth & McCaleb.....	Glen Allen, Ala.....	420
Haukins & Choffin.....	Beaverton, Ala.	440
Hall Bros. & Co.....	Russellville, Ala.	450
Hubbert, C. M.....	Glen Allen, Ala.....	458
Harris, J. P.....	Abanda, Ala.	480
Howard, H. H.....	Sylacauga, Ala.	482
Hamilton, J. A.....	Scottsboro, Ala.	495
Howard Bros.	Scottsboro, Ala.	498
Hale & Lee.....	Leesburg, Ala.	456
Hough, T. C.....	Union Grove, Ala.	504
Huff, A. T.....	Wetumpka, Ala.	518
Hodge, J. T. & Bro.....	Wadley, Ala.	536
Hendley, M.	Wadley, Ala.	539
Hixon, D. A.....	Union Springs, Ala.....	559
Harper, J. R.....	Geneva, Ala.	573
Hancock, T. J.....	Ethelsville, Ala.	591
Harris & Nichols.....	Marion, Ala.	600
Hudson & Johnson.....	Ozark, Ala.	605
Hooper, A. R.....	Guntersville, Ala.	626
Hughes & Hart.....	Florala, Ala.	631
Houston, M. M. & Co.....	Town Creek, Ala.....	632
Harris & Co.....	Town Creek, Ala.....	635
Henderson Black & Merrill.....	Dozier, Ala.	645
Heard Bros.	Camp Hill, Ala.....	656
Hudson & Bell.....	Gaylesville, Ala.	670
Hall, Jan J.....	Gordon, Ala.	675
Hackleburg Mercantile Co.....	Hackleburg, Ala.	699
Hicks & Oliver.....	Dadeville, Ala.....	703
High, B. G.....	Perote, Ala.	714
Hardy, S. J. Co.....	Alberta, Ala.	696
Haralson, J. B.....	Fort Payne, Ala.....	719
Henegar, H. O.....	Pisgah, Ala.	725
Hopper, H.	Altoona, Ala.	734

<i>Name.</i>	<i>Postoffice</i>	<i>License No.</i>
Hubbard, R. M.....	Jemison, Ala.	740
International Agricultural Corp.....	Montgomery, Ala.	7
Jefferson Fertilizer Co.....	Birmingham, Ala.	36
Jackson, J. T. & Son.....	Clio, Ala.	218
Johnson, H. C.....	New Brocton, Ala.....	222
Jenkins & Earley.....	Geneva, Ala.	245
Johnson Bros.	Brundidge, Ala.	262
Johnson, C. C.....	Cullman, Ala., Route 5.....	301
Jackson Mercantile Co.....	Range, Ala.....	408
Johnson Bros. & Sturdivant.....	Dadeville, Ala.	413
Johnson-Darby Co.	Florence, Ala.	438
Jefferson Bros.	Selma, Ala.	522
Johnson, T. E.....	Cullman, Ala.	555
Jones, V. D.....	Troy, Ala.	612
Jackson, I. T. & Son.....	Phil Campbell, Ala.....	620
Jones, W. H.....	Eufaula, Ala.	663
Jackson, M. F.....	Pine Apple, Ala.....	700
Jeff D. Jordan & Co.....	Center, Ala.	723
Kemamer, D. C.....	Woodville, Ala.	42
Killian, H. H.....	Fort Payne, Ala.....	53
Kelly, D. E. & E. J.....	Harvest, Ala.	65
King, W. J.....	Citronelle, Ala.	85
Kentucky Fertilizer Co.....	Louisville, Ky.	98
Kroell, George	Montevallo, Ala.	277
Kelly, A. D. & Co.....	Wallace, Ala.	288
King Mercantile Co.....	James, Ala.	317
Kitchens, J. R. & Bro.....	Heflin, Ala.	380
Knox, J. L. & Co.....	Andalusia, Ala.	396
Kelly Mill Co.....	Repton, Ala.	419
Kelly, Riley	Excel, Ala.	421
Kilgore, R. B.....	Wadley, Ala.	535
Keyser & Hicks.....	Talladega, Ala.	548
Killian, M. H. & Co.....	Portersville, Ala.	569
Kemp, Tom	Clanton, Ala.	579
Keykundall, J. M.....	Henegar, Ala.	649
Louisville Fertilizer Co.....	Nashville, Tenn.	70
Little, L.	Morris, Ala.	155

<i>Name.</i>	<i>Postoffice</i>	<i>License No.</i>
Leith, G. S.....	Cullman, Ala.	167
Lazenby Mercantile Co.....	Monroeville, Ala.	169
Lee, J. T.....	Nauvoo, Ala., Route 1.....	216
Lamar & Shanks.....	Selma, Ala.	309
LaFayette Cotton Oil Mills.....	LaFayette, Ala.	313
Loyd, D. P. & Son.....	Hurtsboro, Ala.	345
Lee, R. E.....	Cullman, Ala.	366
Lockling, Estate Paul E.....	Fruitdale, Ala.	393
Little, C. E.....	Auburn, Ala.	433
Lowe, J. R. & Co.....	Leesburg, Ala.	462
Lull & Sanford Mdse. Co.....	Wetumpka, Ala.	465
Lerman, E. D.....	Athens, Ala.	470
Livingston Bros.	Belleville, Ala.	479
Long, Wallace R.....	Eldridge, Ala.	488
Lackey, G. W.....	Boaz, Ala.	547
Lee & Armstrong Co.....	Town Creek, Ala.....	634
Long, T. H. & Co.....	Uniontown, Ala.	642
Lovelace, W. A.....	Haleyville, Ala.	653
Littleton, L. D.....	Guin, Ala.	660
Laslie & Preer.....	Tuskegee, Ala.	677
Leach Bros.	Dadeville, Ala.	680
Love, J. D.....	Trafford, Ala.	681
Long, J. P.....	Repton, Ala.	691
Lang Mills Co.....	Fruitdale, Ala.	304
Lowery, H. L.....	Calvert, Ala.	738
Mutual Guano Co.....	Ozark, Ala.	21
Mt. Pleasant Branch, V.-C. C. Co.....	Mt. Pleasant, Tenn.....	23
Muscogee Guano Co.....	Columbus, Ga.	26
Moorer, L. L.....	Evergreen, Ala.	37
Morris Fertilizer Co.....	Atlanta, Ga.	44
Metcalf Hardware Co.....	Slocumb, Ala.	46
Mertz, G. & Co.....	Mobile, Ala.	91
Marx Grocery & Produce Co.....	Mobile, Ala.	93
Miller, S. F. & Co.....	Portland, Ala.	96
Meadows, M. R. & Co.....	Opelika, Ala.	106
Macon County Oil Co.....	Tuskegee, Ala.	127
Mayer Brothers	Demopolis, Ala.	134
Martin Investment Co.....	Bessemer, Ala.	137
Moseley-Hutchison Merc. Co.....	Enterprise, Ala.	148
Maxwell Jones & Co.....	Valley Head, Ala.	188

<i>Name.</i>	<i>Postoffice</i>	<i>License No.</i>
Minter, A. N.....	Warrior, Ala.	200
Morgan, Joe	Slocomb, Ala.	205
Marlboro Guano Co.....	Dothan, Ala.	210
Morgan, H. J.....	Albertville, Ala.	220
Mullins, J. R.....	Clanton, Ala.	221
Murphy & Co.....	Troy, Ala.	266
Morris, J. J.....	Samson, Ala.	284
Murphey, A. G.....	Excel, Ala.	422
Mullenax, J. E.....	Pisgah, Ala.	423
Moring, E. W. & Bro.....	Abbeville, Ala.	429
Moreman & Webb.....	Waverly, Ala.	437
Morton, L. F.....	Elkmont, Ala.	441
Moore, W. E.....	Gallant, Ala.	474
Moncrief, B. W.....	Prattville, Ala.	519
May, Gus & Son.....	Lacey's Spring, Ala.....	571
Miner, R. L.....	Gadsden, Ala.	576
Morris, E. H.....	Columbiana, Ala.	583
Miller & Son.....	Oxford, Ala.	586
Mason, W. H.....	Marion, Ala.	601
Marshall, A. J. & Co.....	Marion, Ala.	602
Moore, J. M.....	Marion, Ala.	603
Mackey, Russell	Round Mountain, Ala.....	609
Moore, E. H. & Son.....	Sellers, Ala.	611
Mills, W. R. & Son.....	Pine Apple, Ala.....	614
Merrill, H. J. & Co.....	Dozier, Ala.	616
Merchants Grocery Co.....	Demopolis, Ala.	643
Miller & Lovelace.....	Dadeville, Ala.	648
Marshall, E. M. & Son.....	Orrville, Ala.	669
Mims, H. B.....	Beatrice, Ala.	687
Mizell Mercantile Co.....	Samson, Ala.	702
Moreman, O. S.....	Waverly, Ala.	704
Mayberry, W. H. & Sons.....	Waverly, Ala.	705
Maddox & Elliott.....	Easonville, Ala.	716
McMillan & Harrison.....	Mobile, Ala.	90
McGowan Seed Company.....	Mobile, Ala.	95
McKenzie, F. L. Mercantile Co.....	Tallassee, Ala.	166
McMurray & Son.....	Roanoke, Ala.	196
McVay, George B., Jr.....	Birmingham, Ala.	203
McCoy-Smith Mercantile Co.....	Perdido Station, Ala.....	206
McVay Seed & Floral Co.....	Birmingham, Ala.	214

<i>Name.</i>	<i>Postoffice</i>	<i>License No.</i>
McNair Bros.	Inverness, Ala.	219
McAdams & Co.	Millport, Ala.	227
McGhee Cotton Co.	Rome, Ga.	235
McPherson, E. E.	Boaz, Ala., Route 2	247
McKenzie, J. M.	Greenville, Ala.	305
McCoy & Curtis.	Atmore, Ala.	326
McPherson & Brother.	Boaz, Ala.	375
McCullock & Adams.	Moulton, Ala., R. F. D.	379
McSwean, W. P. & Brother.	Brantley, Ala.	403
McCants, N. B. & Co.	Tinela, Ala.	410
McCormick, W. L.	Jacksonville, Ala.	427
McGowan & Co.	Cuba, Ala.	442
McLendon, C. A.	Omega, Ala.	708
Newman, Robert	Abbeville, Ala.	145
Nolen, L. W.	Notasulga, Ala.	370
Nolen, Roy L.	Alexander City, Ala.	475
Nolen, G. P.	Alexander City, Ala.	476
Noble, M.	Attalla, Ala., Route 1.	509
Nicholson, L. S.	Collinsville, Ala.	533
Noel, W. W.	Wadley, Ala.	538
Newton, W. M.	Repton, Ala.	671
Newton, W. M.	Roy, Ala.	672
Nettles, D. R.	Peterman, Ala.	688
Nettles, W. J.	Tunnel Springs, Ala.	690
Ophelia Mercantile Co.	Opelika, Ala.	110
Odom, E. D.	Hillsboro, Ala.	114
Oliver, C. W.	Union Springs, Ala.	207
Owens, B. M.	Troy, Ala.	217
Owens, Chas. H.	Hurtsboro, Ala.	289
Outlaw & Bell.	Scottsboro, Ala.	331
Oakley, W. F.	Columbia, Ala.	368
O'Neal, Law & Co.	Andalusia, Ala.	405
Ogden, F. & Bro.	Sulligent, Ala.	453
Oxford Oil Co.	Oxford, Ala.	493
Outlaw, J. L.	Scottsboro, Ala.	497
Orrville Mercantile Co.	Orrville, Ala.	668
Purity Fertilizer Co.	Greenville, Ala.	25
Pinecard & Lay.	Gadsden, Ala.	29

<i>Name.</i>	<i>Postoffice</i>	<i>License No.</i>
Piedmont Fertilizer Co.....	Opelika, Ala.	41
Planters Chemical & Oil Co.....	Talladega, Ala.	58
Pittsview Warehouse & Fert. Co.....	Pittsview, Ala.	67
Peoples Fertilizer Co.....	Bay Minette, Ala.....	83
H. W. Pearson.....	Alexander City, Ala.....	87
Planters Supply Co.....	Opelika, Ala.....	109
Pattillo & Russell.....	Selma, Ala.	116
Planters Mercantile Co.....	Greenville, Ala.	117
Parker, G. A.....	Opelika, Ala.	121
Pope, George W. & Co.....	Luverne, Ala.	132
Priddy, W. G.....	Sulligent, Ala.	158
Price, H. C.....	Newville, Ala.	185
Pope, F. W.....	Henagar, Ala.	190
Phillips, W. F.....	Henager, Ala.	197
Produce & Consumers Exchange.....	Mobile, Ala.	212
Planters Warehouse & Com.....	Eutaw, Ala.	224
Pearson, R. G.....	Leroy, Ala.	244
Pearce Bros.	Pearce's Mills, Ala.....	269
Pry, O. T. & P. H. Whorton.....	Dutton, Ala., Route 1.....	274
Pose, Jos.	Daphne, Ala.	275
Perry, O. T.....	Scottsboro, Ala.	333
Prine, R. L.....	Citronelle, Ala.	335
Patton & Deason.....	North Port, Ala.....	340
Parker, W. S.....	Notasulga, Ala.	360
Pinson, M. Q. & Co.....	Cooker, Ala.	388
Pelham, Sitz & Co.....	Gadsden, Ala.	409
Prestwood, F. M.....	McCullough, Ala.	435
Petrey, W. L. & Co.....	Petrey, Ala.	454
Planters Trading Co.....	Elba, Ala.	483
Phillips, E. P.....	Ariton, Ala.	485
Powers, L. P.....	Ozark, Ala., Route 6.....	491
Pinkston, J. C.....	Shorter, Ala.	503
Prattville Mercantile Co.....	Prattville, Ala.	520
Philips & Neely Mercantile Co.....	Gadsden, Ala.	525
Pruitt, C. M.....	Ashland, Ala.	542
Priebe, H.	Jenifer, Ala.	563
Phillips, L. L.....	Bear Creek, Ala.....	565
Parker, W. G.....	Columbiana, Ala.	582
Perryman Bros.	Heflin, Ala.	590
Patterson & Herren.....	Tallassee, Ala.	615
Pitts & Sons.....	Pittsview, Ala.	637

<i>Name.</i>	<i>Postoffice</i>	<i>License No.</i>
Pope, J. F.....	Wilsonville, Ala.	644
Parker, R. E.....	Samson, Ala.	685
Patsburg Mercantile Co.....	Patsburg, Ala.	739
Robbins & McGowan Co.....	Brewton, Ala.	39
Rome Chemical Co.....	Atlanta, Ga.	45
Roanoke Guano Co.....	Roanoke, Ala.	48
Read Phosphate Co.....	Nashville, Tenn.	49
Rainbow Guano Co.....	Montgomery, Ala.	56
Robertson, T. H.....	Fayette, Ala.	74
Rice, J. D. & Son.....	Huntsville, Ala.	131
Reynolds, E. H.....	Notasulga, Ala.	156
F. S. Royster Guano Co.....	Montgomery, Ala.	162
Robertsdale Feed Mills.....	Robertsdale, Ala.	178
Russell, T. B.....	Childersburg, Ala.....	231
Ramage & Gilmore.....	Brundidge, Ala.	261
Rammage, Parks & Co.....	Brundidge, Ala.	263
Raby, J. R.....	Harvest, Ala.	276
Reynolds, W. M.....	Clio, Ala.	283
Roy, M. G.....	Siluria, Ala.	315
Riley, O. A.....	Ashland, Ala.	352
Rea, T. D.....	Notasulga, Ala.	362
Rothschild & Bro.....	Claiborne, Ala.	418
Rice, H. M.....	Scottsboro, Ala.	426
Rhodes Bros.	Georgiana, Ala.	448
Rockett, J. T.....	Cooper, Ala.	452
Rauner & Co.....	Elba, Ala.	455
Rebman, A. F. & Co.....	Courtland, Ala.	508
Robinson Lumber Co.....	Cooper, Ala.	523
Riser, G. M. & Co.....	Childersburg, Ala.	566
Raney, D. R.....	Akron, Ala.	572
Roberts, P. W. & Co.....	Piedmont, Ala.	585
Reynolds, W. A.....	Clanton, Ala.	608
Rutherford, J. W.....	Franklin, Ala.	627
Robertson, W. N.....	Loachapoka, Ala.	647
Rushton, A. L.....	Rutledge, Ala.	651
Richardson, J. W. & Bro.....	Ariton, Ala.	664
Robinson & Knight.....	Repton, Ala.	686
Ratliff, Vernon	Garden City, Ala.....	721
Richards & Bryan.....	Louisville, Ala.	726
Rehberg, Dan	Vinemont, Ala.	735

<i>Name.</i>	<i>Postoffice</i>	<i>License No.</i>
Swift & Co. Fertilizer Works.....	New Orleans, La.....	8
Swift & Co. Fertilizer Works.....	Atlanta, Ga.	18
South Atlantic Guano Co.....	Atlanta, Ga.	43
Standard Chemical & Oil Co.....	Troy, Ala.	47
Smith Grocery Co.....	Selma, Ala.	76
Snead, J. H.....	Boaz, Ala.	104
Smith, T. John.....	Opelika, Ala.	105
Sessions, H. M. & Sons.....	Enterprise, Ala.	123
Sellers, W. R.....	Troy, Ala.	141
Singletary & Whiddon.....	Dothan, Ala.	153
Sowell Mercantile Co.....	Monroeville, Ala.	182
Sanders Bros.	Dothan, Ala.	211
Smith Bros. & Gibson.....	Collinsville, Ala.	213
Smith, Abb J.....	Coffee Springs, Ala.....	232
Solomon & Oates.....	Headland, Ala.	255
Smith, S. O.....	Cottonwood, Ala.	273
Salter, J. S.....	Kellyton, Ala.	285
Stanley, G. W.....	Opp, Ala.	292
Smith & Fay.....	Prattville, Ala.	297
Stewart, S. E.....	Hartselle, Ala.	308
Sylacauga Fertilizer Co.....	Sylacauga, Ala.	316
Stanton, P. E.....	Canoe, Ala.	318
Scarbrough & Hayes.....	Choccolocco, Ala., Route 1.....	322
Strickland & Co.....	Woodstock, Ala.....	342
Seale Fertilizer Co.....	Seale, Ala.	346
Scheusaler & Co.....	Roanoke, Ala.	357
Stevenson, W. A.....	Notasulga, Ala.	361
Steefelmeyer, C. A.....	Cullman, Ala.	367
Singleton, J. M.....	Escatawpa, Ala.	372
Sewell, R. M.....	Leesburg, Ala.	374
Smith, Nelson & Carter.....	Athens, Ala.	376
Snead, James E.....	Boaz, Ala.	390
Shreve, J. W.....	Andalusia, Ala.	395
Stires, E. E.....	Summerdale, Ala.	414
Sturkey, H. D.....	Gadsden, Ala.	457
Sutterer, John F.....	Cullman, Ala.	463
Stinson, J. L.....	Butler Springs, Ala.	489
Strock, W. H.....	Verbena, Ala.	499
Skelton Bros.	Scottsboro, Ala.	505
Salem Co.	Salem, Ala.	528
Scheusler, Chas. & Sons.....	LaFayette, Ala.	529

<i>Name.</i>	<i>Postoffice</i>	<i>License No.</i>
Stanley & Singer.....	LaFayette, Ala.	530
Scheusler, Lewis & Sons.....	Wadley, Ala.	534
Sloan, J. F.....	Cedar Bluff, Ala.....	554
Still, J. H.....	Haleyville, Ala.	560
Stickey Warehouse Co.....	Greensboro, Ala.	592
Shivers, E. D.....	Marion, Ala.	593
Smith, J. W.....	Reform, Ala.	595
Smith Mercantile Co.....	Marion Junction, Ala.....	598
Sharp, Famby & Co.....	Piedmont, Ala.	607
Savage, W. A. & Co.....	Coal City, Ala.....	618
Sanderson Co.	Town Creek, Ala.....	633
Stringfellow, Murphy	Aliceville, Ala.	639
Shaw, Lee	Guin, Ala.	646
Scott, W. L.....	Haleyville, Ala., Route 5.....	650
Stone, J. A.....	Cedar Bluff, Ala., Route 1.....	658
Snodgrass, J. D. & Son.....	Scottsboro, Ala.	665
Stewart Bros.	Hartselle, Ala.	679
Spivey Cotton Co.....	Scottsboro, Ala.	682
Schiffman, I. & Co.....	Huntsville, Ala.	683
Stallworth, J. M.....	Beatrice, Ala.	693
Stewart, J. C. & Co.....	Jackson, Ala.	713
Stokes, O. F.....	Pine Hill, Ala.....	717
Scott, C. D.....	Yellow Pine, Ala.	733
Tennessee Coal, Iron & R. R. Co.....	Birmingham, Ala.	28
Tuscaloosa Cotton Seed Oil Co.....	Tuscaloosa, Ala.	32
Taylor, Lowenstein & Co.....	Mobile, Ala.	52
Tennessee Chemical Co.....	Nashville, Tenn.	69
Talladega Fert. & Mfg. Co.....	Talladega, Ala.	77
Treadway & Son.....	Cuba, Ala.	142
Tupelo Fertilizer Factory.....	Tupelo, Miss.	152
Tisdale, W. R.....	Andalusia, Ala.	399
Tidmore Bros.	Moundville, Ala.	191
Thomasville Fertilizer Co.....	Thomasville, Ala.	303
Tallapoosa Chemical Co.....	Alexander City, Ala.....	348
Tenant, W. T.....	Roanoke, Ala.	355
Tucker, Willingham & Co.....	LaFayette, Ala.	359
Thompson, A. J.....	Russellville, Ala.	451
Tramel & Autrey.....	Steele, Ala.	473
Thomas, J. C.....	Section, Ala.	494
Thomas, R. S.....	Scottsboro, Ala.	496

<i>Name.</i>	<i>Postoffice</i>	<i>License No.</i>
Thornton, Ira	Stevenson, Ala.	511
Tucker, J. R.	Cullman, Ala.	514
Treadwill, S. D.	Ashland, Ala.	541
Teague Bros.	Ashville, Ala.	546
Tatum & Clifton	Cedar Bluff, Ala.	558
Taliaferro, McCreary & Ivey	Evergreen, Ala.	638
Terry, H. R.	Greensboro, Ala.	654
Thomas, S. J.	Kellyton, Ala.	731
Thweatt, W. M.	McFall, Ala.	736
Taylor, S. C.	Calvert, Ala.	737
Teague, A. B. & Co.	Heflin, Ala.	745
Union Springs Guano Co.	Union Springs, Ala.	57
Union Seed & Fertilizer Co.	New Orleans, La.	63
Union Fertilizer Co.	Cullman, Ala.	71
Union Seed & Fertilizer Co.	Huntsville, Ala.	101
Union Mercantile Co.	Coffee Springs, Ala.	186
Usry, O. E.	Wellington, Ala.	467
U. S. Warehouse Co.	Reform, Ala.	596
Victor Guano Co.	Nashville, Tenn.	50
Virginia-Carolina Chemical Co.	Montgomery, Ala.	61
Virginia-Carolina Chemical Co.	Mobile, Ala.	62
Van-Antwerp Drug Corporation	Mobile, Ala.	94
Vandegrift, A. B. & Son	Birmingham, Ala.	195
Vinson Bros.	Flomaton, Ala.	329
Vann, S. R.	Headland, Ala.	411
Van Hoose & Wilson	Cuba, Ala.	415
Vernon, F. A.	Cusseta, Ala.	432
Vaughn, W. N.	Guin, Ala.	443
Wiley Fertilizer Co.	Troy, Ala.	9
Ward, W. L. & Sons	Selma, Ala.	72
Wright, Claude	Gant, Ala.	81
Wright, W. C.	Luverne, Ala.	82
Winkler Mercantile Co.	Greenville, Ala.	119
Warrior Fertilizer Co.	North Port, Ala.	150
Warren Guano Co.	Enterprise, Ala.	174
Waldrop, R. N., Jr.	Millport, Ala.	192
Watson Bros.	Geneva, Ala.	208
Wakefield, J. P.	Alexandria, Ala.	238

<i>Name.</i>	<i>Postoffice</i>	<i>License No.</i>
Whidden, J. W.....	Newville, Ala.	249
Warner, Carroll & Co.....	Ozark, Ala.	254
Wise, G. W.....	Madison, Ala.	294
Wright, W. E.....	Haynesville, Ala.	311
Walker, J. B.....	Plevna, Ala.	330
Worthy Bros.	Goodwater, Ala.	350
White & Aubry.....	Roanoke, Ala.	354
Woodward & Son.....	Talladega, Ala.	371
White, W. S.....	Perote, Ala.	305
Wood, J. D.....	Abbeville, Ala.	386
Wells, L. E.....	Daleville, Ala.	392
Wilder Mercantile Co.....	Andalusia, Ala.	398
Williams, I. F.....	Luverne, Ala.	401
White, J. B.....	Talladega, Ala.	412
Waters, W. L.....	Alexander City, Ala.	417
Weldon, R. G. & Co.....	Wilsonville, Ala.	446
Weldon, J. H.....	Vincent, Ala.	459
Watson, C. E.....	Clayton, Ala.	464
Wilson Mercantile Co.....	Russellville, Ala.	507
Woolbright, J. J.....	Millport, Ala.	527
Wood, S. H.....	Ashland, Ala.	544
Woolf, J. P.....	Piedmont, Ala.	581
Ward, T. R. & Son.....	Greensboro, Ala.	619
Wiles, W. S. & Son.....	Guntersville, Ala.	625
Windham, A. L.....	Moulton, Ala.	628
Walker, O. H.....	Rutledge, Ala.	652
Wallace Lumber Co.....	York, Ala.	659
White, A. W.....	Huntsville, Ala.	678
Wilson, W. P.....	Dickenson, Ala.	720
White, R. L.....	Arab, Ala.	724
Word Bros.	Scottsboro, Ala.	746
Young-Sanders & Co.....	Dothan, Ala.	84
Yarbrough, W. E.....	Athens, Ala.	469
Youngblood, B. L. & P. E.....	Minters, Ala.	706
Ziliak & Schafer Milling Co.....	Mobile, Ala.	103

OFFICIAL ANALYSES
REPORTED BY THE STATE CHEMIST

FROM AUGUST 1st, 1918
TO AUGUST 1st, 1919

ANNUAL FERTILIZER REPORT

NAME OF FERTILIZER OR CHEMICAL.	Mfrs. Guaranteed Analyses.					Department Number.	Laboratory Number.	Analyses of State Chemist.						
	Water Soluble.	Citrate Soluble.	Total Available	Phos. Acid.	Nitrogen.			Potash.	Water Soluble.	Citrate Soluble.	Total Available	Phos. Acid.	Nitrogen.	Potash.	Commercial Value.
A. D. ADAIR & McCARTY BROS., INC., Atlanta, Ga. and Chattanooga, Tenn.														
Adair's Soluble Pacific Guano.....	7.00	3.00	10.00	1.65	1.65	2.00	102A	27629	7.55	2.47	10.02	1.69	1.48	\$36.19
A. & M. Special Fertilizer 12-2-0.....	9.00	3.00	12.00	1.65	1.65	.....	103A	27630	9.15	3.17	12.82	1.76	.....	29.92
ALABAMA CHEMICAL CO. OF ALABAMA, Montgomery, Ala.														
Rex Blood & Bone.....	7.00	5.00	12.00	1.65	1.65	.....	60A	27587	9.85	3.35	13.20	1.78	.....	31.30
Chicago Blood & Bone.....	7.00	5.00	12.....	1.65	1.65	.....	45C	27306	9.15	2.77	11.92	1.80	.....	29.65
Alabama Meal & Acid Mixture.....	7.00	5.00	12.00	1.65	1.65	.....	27A	27554	9.40	2.79	12.19	1.88	.....	30.61
.....	.....	.....	.....	.....	.....	.....	138C	27500	11.05	2.94	13.99	1.70	.....	31.83
Alabama Fish Formula.....	7.00	5.00	12.00	1.65	1.65	.....	20B	27260	9.00	3.25	12.25	1.87	.40	32.61
Alabama Bone & Potash.....	7.00	5.00	12.00	.....	.....	2.00	19C	27464	9.30	3.02	12.32	.79	1.88	32.34
Big Four Acid Phosphate.....	10.00	6.00	16.00	.....	.....	.....	46C	27307	14.40	2.11	16.51	.....	.....	23.11
.....	.....	.....	.....	.....	.....	.....	2F	27212	12.90	2.20	15.10	.....	.26	22.44

Gold Medal Acid Phosphate.....	10.00	6.00	16.00	.....	.....	65A 27592	13.85	3.17	17.02	.....	23.38
Rex Dissolved Bone.....	9.00	5.00	14.00	.....	.....	27F 27237	12.30	2.75	14.65	.....	20.51
Red Cross Guano.....	7.00	2.00	9.00	1.65	3.00	113B 27728	6.20	3.71	9.91	1.73	3.30 42.83
Liberty Bell Guano.....	7.00	3.00	10.00	1.65	2.00	119B 27734	6.90	4.29	11.19	1.89	2.13 39.93
Rex High Grade Guano.....	7.00	3.00	10.00	1.65	2.00	63A 27590	6.15	4.73	10.88	1.88	2.67 42.12
.....	.....	.....	.....	.....	.....	20C 27465	8.40	2.74	11.14	1.75	2.11 38.75
Alabama Standard Guano.....	7.00	3.00	10.00	1.65	2.00	28A 27555	6.85	3.70	10.55	1.89	2.33 40.03
Alabama Fish Guano.....	7.00	3.00	10.00	1.65	2.00	64A 27591	5.20	5.65	10.85	1.96	2.90 43.80
.....	.....	.....	.....	.....	.....	201C 27705	5.00	5.91	10.91	1.76	3.07 43.29
Liberty Bell Blood & Bone.....	7.00	3.00	10.00	3.30	.....	74B 27418	8.05	2.16	10.21	3.34	 38.34
Omega Blood & Bone.....	7.00	4.00	11.00	2.47	.....	75B 27419	9.30	2.47	11.79	2.86	 37.10
Alabama Special Meal Formula.....	7.00	4.00	11.00	2.47	.....	18C 27463	9.95	1.91	11.86	2.31	 33.23
.....	.....	.....	.....	.....	.....	117B 27732	9.75	2.33	12.08	2.44	 34.48
Standard Meal Blood & Fish.....	8.00	2.00	10.00	1.65	2.00	150C 27654	7.00	3.46	10.46	1.77	2.09 37.83
ARMOUR'S FERTILIZER WORKS, Nashville, Tenn.											
Armour's Helmet High Grade.....	6.50	3.50	10.00	1.60	2.00	80C 27341	7.40	3.45	10.85	1.64	2.09 37.45
Armour's Sunrise Cottonseed Meal Special.....	6.50	3.50	10.00	1.65	2.00	75C 27336	7.70	2.72	10.52	1.94	1.45 35.95
Armour's Special Guano.....	7.00	4.00	11.00	1.65	1.00	101C 27362	7.15	3.32	10.47	1.71	1.38 33.87
Armour's Crop Grower.....	8.00	4.00	12.00	1.65	.....	36A 27563	9.40	3.88	13.28	1.68	 30.60
Armour's Phosphate and Potash.....	8.00	4.00	12.00	.....	2.00	99C 27360	8.65	3.50	12.15	.....	1.85 26.26
Armour's High Grade Acid Phosphate.....	10.00	6.00	16.00	.....	.....	20A 27547	14.90	2.97	17.87	.....	..... 25.02
.....	.....	.....	.....	.....	.....	76C 27337	12.57	2.91	15.48	.....	..... 21.67

ANNUAL FERTILIZER REPORT

NAME OF FERTILIZER OR CHEMICAL.	Mfrs. Guaranteed Analyses					Department Number.	Laboratory Number.	Analyses of State Chemist.					
	Water Soluble.	Citrate Soluble.	Total Available Phos. Acid.	Nitrogen.	Potash.			Water Soluble.	Citrate Soluble.	Total Available Phos. Acid.	Nitrogen.	Potash.	Commercial Value.
Armour's Champion Trucker.....	7.00	4.00	11.00	2.47	.....	192C	27696	8.60	3.05	11.65	2.50	.....	34.31
Armour's Raw Bone Meal.....	.....	.....	22.00	3.70	.....	84C	27345	0.10	11.67	11.77	4.12	.....	46.14
ALABAMA OIL & GUANO CO., Opelika, Ala.													
Lee Fertilizer	8.00	2.00	10.00	1.65	2.00	17A	27544	4.90	6.25	11.15	1.60	3.00	42.13
Farmers' Club Guano.....	7.00	2.00	9.00	2.47	3.00	50A	27577	6.85	2.13	8.98	2.45	3.13	45.86
Corn and Cotton Guano No. 1.....	10.00	2.00	12.00	2.47	.....	48A	27575	10.30	2.47	12.57	2.48	.....	35.46
Corn and Cotton Guano No. 2.....	8.00	2.00	10.00	3.30	.....	49A	27576	8.60	3.59	12.19	2.97	.....	38.45
Acid Phosphate	14.00	2.00	16.00	.....	.....	51A	27578	13.75	2.62	16.37	.....	.....	22.92
THE AMERICAN AGRICULTURAL CHEM- ICAL COMPANY, Montgomery, Ala.													
Big Bee 16% Acid Phosphate.....	13.00	3.00	16.00	.....	.....	16F	27226	13.95	3.59	17.54	.....	.....	24.56

Bigbee High Grade Fish Guano.....	7.00	3.00	10.00	1.65	2.00	82B 27438	8.40	2.56	10.96	1.87	2.08	39.20
Bigbee High Grade Guano.....	7.00	3.00	10.00	1.65	2.00	82A 27609	7.00	2.64	9.64	1.79	2.25	37.64
Bigbee Meal Special.....	9.00	3.00	12.00	1.65	-----	17F 27227	9.69	3.02	12.69	2.06	-----	32.60
Bigbee 3% Ammoniated Bone.....	8.00	3.00	11.00	2.47	-----	83F 27725	9.40	2.80	12.20	2.46	-----	32.63
Goulding's 16% Acid Phosphate.....	13.00	3.00	16.00	-----	-----	179C 27683	14.00	3.30	17.30	-----	-----	24.22
-----	-----	-----	-----	-----	-----	31F 27241	12.80	3.06	15.36	-----	-----	22.20
Goulding's High Grade Meal Fertilizer.....	7.00	3.00	10.00	1.65	2.00	56B 27400	8.10	3.16	11.26	1.55	2.02	37.02
-----	-----	-----	-----	-----	-----	65B 27409	8.90	2.03	10.93	1.89	1.77	37.76
Goulding's High Grade Fish Guano.....	7.00	3.00	10.00	1.45	2.00	148C 17652	7.60	2.43	10.03	1.56	2.28	38.83
-----	-----	-----	-----	-----	-----	55B 27399	7.60	3.63	11.23	2.11	2.36	42.71
Goulding's High Grade Guano.....	7.00	3.00	10.00	1.65	2.00	180C 27664	7.45	2.68	10.13	2.01	1.98	38.55
Goulding's Ammoniated Bone.....	9.00	3.00	12.00	1.65	-----	57F 27292	9.55	3.18	12.73	1.88	-----	31.96
Goulding's Fish Special.....	9.00	3.00	12.00	1.65	-----	39F 27249	9.25	2.73	11.98	2.06	-----	33.95
-----	-----	-----	-----	-----	-----	57B 27401	10.30	2.57	12.87	1.97	-----	32.20
Goulding's Meal Special.....	9.00	3.00	12.00	1.65	-----	59B 27403	10.50	2.86	11.81	2.17	-----	31.03
Goulding's 3% Ammoniated Bone.....	8.00	3.00	11.00	2.47	-----	66B 27410	9.47	2.46	11.93	2.44	-----	34.27
American High Grade Guano.....	7.00	3.00	10.00	1.65	2.00	83B 27439	8.15	2.55	10.70	1.84	2.20	39.23
American Fish Guano.....	9.00	3.00	12.00	1.65	-----	12A 27539	9.45	3.18	12.63	1.78	-----	30.50
American Blood & Bone Fertilizer.....	8.00	3.00	11.00	1.65	1.00	73F 27430	9.55	2.61	12.16	1.81	1.50	37.55
American Special Alkaline Formula.....	6.00	3.00	9.00	1.65	3.00	11A 27538	6.85	3.62	10.47	1.89	3.03	43.42
ATLANTIC CHEMICAL CORPORATION, Montgomery, Ala.	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Atlantic Special For Peanuts.....	8.25	3.75	12.00	1.65	1.00	80B 27436	10.00	2.71	12.71	1.49	1.12	34.12

ANNUAL FERTILIZER REPORT

NAME OF FERTILIZER OR CHEMICAL.	Mfrs. Guaranteed Analyses					Department Number.	Laboratory Number.	Analyses of State Chemist.					
	Water Soluble.	Citrate Soluble.	Total Available Phos. Acid.	Nitrogen.	Potash.			Water Soluble.	Citrate Soluble.	Total Available Phos. Acid.	Nitrogen.	Potash.	Commercial Value.
W. A. ARNOLD, Clio, Ala.													
Arnold's Special Cotton Grower Guano.....			12.00	1.65	.....	133B	27748	11.20	2.40	13.60	1.95	.....	33.08
ALICEVILLE OIL & MFG. CO., Aliceville, Ala.													
Aliceville High Grade Phosphate.....			16.00	.....	.....	80F	27722	14.15	2.09	16.24	.....	.....	22.73
Aliceville Cotton Special			10.00	1.65	2.00	79F	27721	9.50	4.15	13.65	1.68	2.56	44.41
Aliceville Corn Special.....			11.00	3.00	.....	78F	27720	10.25	1.92	12.17	2.50	.94	39.74
BIRMINGHAM FERTILIZER CO., Birmingham, Ala.													
Birmingham Extra High Grade Acid Phos.....			16.00	.....	.....	27C	27472	12.85	4.34	17.19	.....	.....	24.07
Birmingham Special Meal Mixture.....			12.00	1.65	.....	26C	27471	8.95	4.72	13.67	1.76	.....	31.81
Birmingham Dissolved Bone Potash Mixture..			12.00	.....	2.00	140C	27502	10.05	4.71	14.76	.....	2.04	30.86

Birmingham High Grade Fertilizer.....	10.00	1.65	2.00	25C 27470	8.70	4.72	13.42	1.50	1.82	38.69
Birmingham H. G. Blood, Bone & Potash.....	10.00	1.65	2.00	37C 27482	8.50	3.47	11.92	2.00	1.41	38.21
Cahaba Special Eleven-Two-One.....	11.00	1.65	1.00	121C 27484	8.85	4.94	13.79	1.68	1.70	39.91
Tensley's H. G. Best Guano.....	10.00	1.65	2.00	206C 27710	9.20	2.55	11.75	1.75	2.13	39.70
BRUNDIDGE FERTILIZER CO., Brundidge, Ala.										
Brundidge Standard Guano.....	12.00	1.65	-----	40B 27384	11.65	2.39	16.04	1.38	-----	29.60
Brundidge Blood & Bone Guano.....	12.00	1.65	-----	41B 27385	11.25	4.52	15.77	1.54	-----	33.17
Brundidge Anti-Blight Guano.....	12.00	1.65	-----	42B 27386	11.90	2.58	14.48	1.62	-----	31.92
CHICKAMAUGA FERTILIZER WORKS, Chattanooga, Tenn.										
Chickamauga H. G. Dissolved Bone.....	16.00	-----	-----	79C 27340	14.40	2.83	17.23	-----	-----	24.12
COWETA FERTILIZER CO., Mobile and Other Points.										
W. O. C., a Pure Blood Guano.....	10.00	1.65	2.00	83A 27610	9.65	3.30	12.95	1.53	2.16	39.95
Coweta Ammonia and Potash Compound.....	11.00	1.65	1.00	171C 27675	10.85	3.02	13.87	1.55	2.36	42.88
Coweta Blood Meal & Fish Mixture.....	12.00	1.65	-----	44B 27388	12.10	2.98	15.08	1.41	-----	31.26
Coweta Special Meal & Acid Mixture.....	12.00	1.65	-----	36C 27481	9.35	4.35	13.70	2.02	-----	33.72
				34F 27244	10.75	2.41	13.16	1.84	-----	31.67
Coweta H. G. Ammoniated Bone.....	12.00	1.65	-----	36F 27246	10.20	2.95	13.15	1.80	-----	31.37
Coweta 16% Acid Phosphate.....	16.00	-----	-----	173C 27677	15.60	2.15	17.75	-----	-----	24.85
Coweta Bone Potash Compound.....	12.00	-----	2.00	46B 27390	7.40	5.61	13.01	-----	2.41	30.26

NAME OF FERTILIZER OR CHEMICAL.	Mfrs. Guaranteed Analyses					Department Number.	Laboratory Number.	Analyses of State Chemist.					
	Water Soluble.	Citrate Soluble.	Total Available Phos. Acid.	Nitrogen.	Potash.			Water Soluble.	Citrate Soluble.	Total Available Phos. Acid.	Nitrogen.	Potash.	Commercial Value.
CAMP HILL GIN & FERTILIZER CO., Camp Hill, Ala.	.....	.....	12.00	2.00	.....	22A	27649	11.85	2.41	14.26	1.70	.....	32.20
COLUMBIA GUANO CO., Montgomery, Ala.	8.25	3.75	12.00	1.65	.....	33F	27243	9.75	3.08	12.83	1.78	.....	30.78
Columbia Sickle Ammoniated Mixture.....	.....	.....	.....	.....	.....	59B	27403	10.50	3.40	13.90	1.68	.....	31.56
CAPITAL FERTILIZER CO., Montgomery, Ala.	13.00	3.00	16.00	.....	.....	3F	27213	13.72	2.51	16.23	.....	.....	22.72
Capital Acid Phosphate.....	.....	.....	.....	.....	.....	60F	27295	13.65	2.72	16.37	.....	.....	22.92
Capital Acid Phosphate & Ammonia.....	10.00	2.00	12.00	2.00	.....	67F	26083	10.80	2.76	13.56	1.88	.....	33.08
.....	.....	.....	.....	.....	.....	59F	27294	10.27	2.36	12.63	1.52	.....	28.62

COOSA FERTILIZER CO., Wetumpka, Ala.												
Coosa Meal Fertilizer.....	8.00	2.00	10.00	1.65	2.00	67B 27411	7.20	6.04	11.24	1.92	1.96	39.36
Coosa Blood & Bone Guano.....	8.00	2.00	10.00	1.65	2.00	71B 27415	7.52	4.20	11.72	1.75	1.86	38.31
Coosa Special Mixture.....	8.00	2.00	10.00	3.29	.....	68B 27412	9.45	1.56	11.01	3.25	.....	38.81
Coosa Extra Blood & Bone.....	9.00	2.00	11.00	2.47	.....	69B 27413	9.70	2.35	12.05	2.76	.....	36.74
Coosa Ammoniated Bone Mixture.....	10.00	2.00	12.00	1.65	.....	72B 27416	10.75	2.32	13.07	1.89	.....	31.91
Coosa Special Potash Mixture.....	8.00	2.00	10.00	.....	4.00	70B 27414	5.00	7.35	12.35	.....	4.00	37.29
COTTON STATES SEED & FERTZ. CO., Macon, Ga.												
T. W. & Special Meal Mixture.....	.....	.....	12.00	1.65	.....	119A 27646	9.95	4.06	16.01	1.98	.....	33.87
CLAY COUNTY OIL MILL & FERTZ. CO., Lineville, Ala.												
Clay County High Grade Guano.....	.....	.....	10.00	1.65	2.00	78A 27605	7.75	5.95	13.72	1.59	2.20	41.66
Clay County High Grade Acid and Phosphate.....	.....	.....	16.00	.....	.....	79A 27606	14.40	2.50	16.90	.....	.....	23.66
DECATUR FERTILIZER CO., Decatur, Ala.												
Red Bat .....	.....	.....	10.00	1.65	2.00	64C 27325	3.20	7.87	11.07	1.53	1.42	33.62
.....	.....	.....	.....	.....	.....	190C 27694	6.55	5.26	11.81	1.75	2.22	40.23
Red Bat .....	.....	.....	12.00	1.65	.....	63C 27324	5.75	4.81	13.56	1.53	.....	30.00
Red Bat .....	.....	.....	10.00	2.48	3.00	189C 27693	6.55	5.10	11.65	1.95	3.51	37.90
Black Bat .....	.....	.....	12.00	.....	2.00	188C 27692	6.35	7.53	13.88	.....	2.51	31.98
Black Bat .....	.....	.....	16.00	.....	.....	65C 27326	12.85	3.33	16.18	.....	.....	22.65
.....	.....	.....	.....	.....	.....	196C 27700	14.95	3.34	18.19	.....	.....	25.47

Furman Blood Meal Compound No. 1121.....	8.00	3.00	11.00	1.65	1.00	96C 27357	7.95	3.23	11.18	1.58	1.35	33.78
Furman High Grade Dissolved Bone No. 16.....	12.00	4.00	16.00	.....	.....	98C 27359	13.95	2.85	16.80	.....	.....	23.52
FARMERS FERTILIZER CO., Montgomery, Ala.												
Jim Dandy Animal Guano.....	7.00	3.00	10.00	1.67	2.00	102C 27363	7.30	2.90	10.20	1.80	2.69	40.69
Farmers' Fish Guano.....	7.00	4.00	11.00	1.65	1.00	167C 27671	8.90	2.44	11.34	1.70	2.14	38.82
Farmers' Special Formula.....	7.00	5.00	12.00	1.65	.....	104C 27365	9.05	3.36	12.41	1.96	.....	31.48
Farmers' Bone and Potash.....	10.00	2.00	12.00	.....	2.00	103C 27364	9.20	4.00	13.80	.....	2.45	31.57
FEDERAL CHEMICAL CO., Louisville, Ky.												
Daybreak High Grade Favorite.....	8.00	2.00	10.00	1.65	2.00	67C 27328	7.20	5.18	12.38	1.65	2.21	40.40
.....	.....	.....	.....	.....	.....	78C 27339	8.22	4.26	12.48	1.75	2.10	40.57
Daybreak A-1 Blood & Bone Guano.....	10.00	2.00	12.00	1.65	.....	77C 27338	8.95	5.35	14.30	1.79	.....	32.91
.....	.....	.....	.....	.....	.....	17B 27257	8.35	5.36	13.70	1.74	.51	34.26
High Grade Phosphate.....	14.00	2.00	16.00	.....	.....	69C 27330	12.22	5.18	17.40	.....	.....	24.36
FOX CHEMICAL CO., Louisville, Ky.												
Fox A-1 Dixie Special.....	9.00	2.00	11.00	1.65	1.00	125C 27488	7.20	4.94	12.14	2.04	1.70	40.19
Fox High Grade Favorite.....	8.00	2.00	10.00	1.65	2.00	126C 27489	6.55	4.98	11.53	1.75	2.29	40.19
Fox A-1 Blood & Bone Guano.....	10.00	2.00	12.00	1.65	.....	127C 27490	8.80	5.78	14.58	1.87	.....	33.87
FARMERS COTTON OIL & FERTZ. CO., Huntsville, Ala.												
Polecat 16% Strong.....			16.00			110A 27637	13.25	2.47	15.72			22.01

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	Water Soluble.	Citrate Soluble.	Total Available Phos. Acid.	Nitrogen.	Potash.			Water Soluble.	Citrate Soluble.	Total Available Phos. Acid.	Nitrogen.	Potash.	Commercial Value.
New Era .....	.....	.....	18.00	.....	.....	111A	27638	15.85	2.56	18.41	.....	.....	25.77
Pure Gold .....	.....	.....	12.00	1.65	.....	112A	27639	12.30	2.54	14.84	2.02	.....	35.32
GEORGIA CHEMICAL WORKS, Columbus, Ga., and Other Points.													
Potapasco Guano	8.00	2.00	10.00	1.65	2.00	187C	27691	9.60	2.85	12.45	1.87	2.65	44.14
.....	.....	.....	.....	.....	.....	95B	27510	7.40	4.32	11.72	1.29	2.69	39.15
Superior Meal Mixture	8.00	2.00	10.00	1.65	2.00	186C	27690	9.25	2.82	12.07	2.06	2.74	45.48
.....	.....	.....	.....	.....	.....	94B	27509	7.55	4.59	12.14	1.73	1.93	39.11
GRASSELLI CHEMICAL CO., Birmingham, Ala.													
Grasselli's H. G. Blood Meal Mixture	7.00	3.00	10.00	1.65	2.00	43A	27570	7.60	3.96	11.56	1.71	2.20	39.59
.....	.....	.....	.....	.....	.....	129C	27491	7.35	3.42	10.77	1.97	2.94	43.96
Grasselli's H. G. Blood, Bone & Potash	7.00	3.00	10.00	1.65	2.00	48F	27283	7.82	4.02	11.84	1.91	1.96	40.13
Grasselli's H. G. Fertilizer	7.00	3.00	10.00	1.65	2.00	9C	27454	7.15	3.14	10.29	1.76	2.64	40.28
.....	.....	.....	.....	.....	.....	203C	27707	7.55	4.49	12.04	1.65	1.77	37.59

Grasselli's H. G. Fish Guano.....	7.00	3.00	10.00	1.65	2.00	7A 27534	8.00	3.19	11.19	2.67	2.13	45.54
Grasselli's H. G. Fertilizer.....	8.50	3.00	11.50	1.65	.51	89B 27445	9.50	3.30	12.80	1.22	.57	29.55
Grasselli's H. G. Blood Meal Mixture.....	8.00	3.00	11.00	1.65	1.00	23C 27468	8.95	3.71	12.66	1.78	.35	32.29
.....	.....	.....	.....	.....	.....	85F 27727	10.10	3.32	13.42	2.28	1.43	42.36
Grasselli's H. G. Guano.....	8.00	3.00	11.00	2.47	.....	5A 27532	9.05	3.66	12.71	2.63	.....	36.73
.....	.....	.....	.....	.....	.....	24C 27469	9.35	2.66	12.01	2.96	.....	38.12
Grasselli's H. G. Fertilizer.....	9.00	3.00	12.00	1.65	.....	70C 27331	9.45	3.73	13.18	1.65	.....	30.33
Grasselli's Special Sea Island Mixture.....	9.00	3.00	12.00	1.65	.....	46A 27573	8.55	4.76	13.31	1.90	.....	32.31
.....	.....	.....	.....	.....	.....	22C 27467	9.15	2.93	12.08	2.88	.....	37.65
Grasselli's H. G. Guano.....	9.00	3.00	12.00	1.65	.....	6A 27533	10.30	3.38	13.68	1.82	.....	32.25
.....	.....	.....	.....	.....	.....	53F 27288	8.85	4.03	12.88	1.88	.....	31.57
Grasselli's Phosphate with Hydrated Lime.....	.....	14.00	14.00	.....	.....	71C 27332	1.37	15.51	16.88	.....	.....	23.63
Grasselli's Extra H. G. Acid Phosphate.....	12.00	4.00	16.00	.....	.....	59A 27586	13.90	5.03	18.93	.....	.....	26.50
.....	.....	.....	.....	.....	.....	8C 27453	14.30	3.82	18.12	.....	.....	25.37
GLOBE FERTILIZER CO., Louisville, Ky.												
Globe A-1 Dixie Special.....	9.00	2.00	11.00	1.65	1.00	51C 27312	7.77	5.81	13.58	1.32	1.44	37.71
Globe H. G. Favorite.....	8.00	2.00	10.00	1.65	2.00	52C 27313	7.47	4.48	11.95	1.17	1.83	34.30
GADSDEN FERTILIZER WORKS, Gadsden, Ala.												
Gadsden H. G. Blood & Bone Guano.....	8.00	2.00	10.00	1.65	2.00	106A 27633	10.20	3.73	13.95	2.55	.95	42.64
.....	.....	.....	.....	.....	.....	146C 27650	8.75	5.97	14.72	1.45	.64	34.25
HOME GUANO CO., Dothan, Ala.												
Red Fox Blood Meal Tankage No. 1.....	10.00	2.00	12.00	1.65		60B 27404	9.95	3.65	13.60	1.82		32.14

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HOME MIXTURE GUANO CO., Columbus, Ga. Home Mixture No. 3..... Home Mixture No. 1..... Home Mixture Ammoniated Compound..... Home Mixture Ammoniated Compound..... Acid Phosphate			10.00	1.65	2.00	57A	27584	3.95	6.07	10.02	2.42	3.61	49.50
						129B	27744	7.10	3.85	10.95	1.80	2.30	39.79
			9.00	2.47	3.00	128B	27743	7.45	2.21	9.66	2.52	3.71	50.21
			11.00	2.47		126B	27741	8.75	3.33	12.08	2.43	.31	36.06
			12.00	1.65		56A	27583	9.65	2.25	11.90	1.96		30.77
						125B	27740	11.40	2.80	14.20	1.54		30.97
HAYLEVILLE OIL & FERTZ. CO., Hayleville, Ala. HOFCO Acid Phosphate..... HOFCO High Grade..... HOFCO American Potash.....			16.00			58A	27585	14.25	1.75	16.00			22.40
						124B	27739	15.00	3.39	18.39			25.75
	12.00	4.00	16.00			111C	27372	14.00	3.18	17.88			24.05
	8.00	2.00	10.00	1.65	2.00	112C	27373	8.50	3.94	12.44	1.90	1.93	40.75
				23.00		113C	26081						21.60

HUNTSVILLE WAREHOUSE CO., Huntsville, Ala.											
Cimmax	12.00	4.00	16.00	.....	.....	.....	.....	3.91	17.11	.....	23.95
Cotton .....	.....	.....	10.00	1.65	2.00	.....	.....	6.08	11.68	1.57	38.45
No. 1220 .....	.....	.....	12.00	1.65	.....	.....	.....	4.78	13.28	1.83	31.77
HURTSBORO GUANO CO., Hurtsboro, Ala.											
Hurtsboro Perfect .....	.....	.....	12.00	2.00	.....	.....	.....	2.37	12.29	2.08	35.19
Hurtsboro Mortgage Lifter .....	.....	.....	10.00	2.00	2.00	.....	.....	3.90	12.47	1.96	41.12
HEADLAND FERTILIZER WORKS, Headland, Ala.											
Farmers' Mixture Guano .....	.....	.....	12.00	1.65	.....	.....	.....	1.93	13.18	1.46	28.96
INTERNATIONAL AGRICULTURAL CORP., Montgomery, Ala.											
Old Hickory Guano	8.00	2.00	10.00	1.65	2.00	.....	.....	1.20	11.40	1.52	40.00
Triangle Fish Guano	8.00	2.00	10.00	1.65	2.00	.....	.....	7.54	11.04	1.68	40.31
.....	.....	.....	.....	.....	.....	.....	.....	4.24	10.59	1.82	38.93
Jumbo Guano	8.00	2.00	10.00	1.65	2.00	.....	.....	2.78	11.98	1.64	40.73
Tiger King Cotton Grower	8.00	2.00	10.00	1.65	2.00	.....	.....	3.42	10.07	1.29	39.19
King Cotton Grower	9.00	2.00	11.00	1.65	1.00	.....	.....	3.04	11.64	1.67	34.92
International Blood & Bone	9.00	2.00	11.00	1.65	1.00	.....	.....	3.71	11.86	1.65	34.13
International Ammoniated Compound	10.00	2.00	12.00	1.65	.....	.....	.....	5.51	12.51	1.88	31.05
.....	.....	.....	.....	.....	.....	.....	.....	3.69	13.19	1.70	30.71
International Bone & Potash	10.00	2.00	12.00		2.00			3.19	13.69		31.97
International Acid Phosphate	13.00	3.00	16.00					1.88	17.23		24.12

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International Bone & Potash.....	8.00	2.00	10.00			94C	27355	12.40	4.81	17.12			24.09
					4.00	162C	27666	5.90	5.11	11.01		3.46	32.71
JEFFERSON FERTILIZER CO., Birmingham, Ala.													
Jefferson A-A-A Special	9.00	3.00	12.00	3.30		30C	27475	11.95	2.70	16.65	3.21		42.62
Jefferson Cotton Grower.....	8.00	3.00	11.00	2.46		145C	27507	9.85	2.40	12.25	2.40		34.43
Jefferson A-A Meal Mixture.....	8.00	2.00	10.00	1.65	2.00	142C	27504	8.85	2.67	11.52	1.67	1.89	37.60
Jefferson High Grade Guano.....	8.00	2.00	10.00	1.65	2.00	42A	27569	8.80	2.54	11.34	1.60	1.92	37.00
						77F	27719	9.30	1.74	11.04	1.54	2.35	38.30
Jefferson A-A Soluble Guano.....	9.00	3.00	12.00	1.65		118C	27379	11.30	1.45	12.75	1.69		30.02
Jefferson Excelsior Acid Phosphate.....	12.00	4.00	16.00			13C	27458	14.70	1.86	16.58			23.18
						81F	27723	12.10	3.33	15.43			21.60
Blood Meal Mixture.....	9.00	3.00	12.00	1.65		41A	27568	7.95	2.81	10.76	1.75		27.66
Canebrake Cotton Grower.....	8.00	3.00	11.00	2.46		160C	27664	7.45	2.82	10.27	2.83		24.76

Canebrake A-A Meal Mixture.....	10.00	2.00	12.00	1.65	.25	108C	27639	10.70	2.57	13.27	1.66	.61	33.58
Canebrake High Grade Guano.....	8.00	2.00	10.00	1.65	2.00	47C	27308	8.92	2.02	10.94	1.74	2.08	38.25
.....	.....	.....	.....	.....	.....	158C	27662	8.95	1.60	10.55	1.70	2.56	39.80
Canebrake A-A Soluble Guano.....	9.00	3.00	12.00	1.65	.....	170C	27674	9.75	3.19	12.94	1.44	.....	28.49
Warrior A-A Meal Mixture.....	8.00	2.00	10.00	1.65	2.00	29C	27474	10.70	2.38	13.08	1.43	.52	31.21
Warrior High Grade Guano.....	8.00	2.00	10.00	1.65	2.00	28C	27473	9.85	1.85	11.70	1.98	1.84	39.84
Warrior Meal, Acid & Potash Mixture.....	9.00	3.00	12.00	1.65	.25	71A	27598	7.40	2.92	10.32	1.82	.61	30.55
Special Potash Mixture.....	8.00	2.00	10.00	.....	4.00	159C	27663	6.30	3.58	9.88	.....	4.33	35.48
Fish Bone Guano.....	10.00	2.00	12.00	1.65	.....	95A	27622	9.30	2.77	12.07	1.73	.....	29.36
Jefferson Meal, Acid and Potash Mixture.....	9.00	3.00	12.00	1.65	.25	130C	27492	10.55	2.76	13.31	1.61	.60	33.20
KENTUCKY FERTILIZER CO., Louisville, Ky.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
O. K. High Grade Favorite.....	8.00	2.00	10.00	1.65	2.00	58C	27319	6.40	4.14	10.54	1.67	2.52	39.38
O. K. A-1 Blood & Bone Guano.....	10.00	2.00	12.00	1.65	.....	68C	27329	7.82	6.56	14.38	1.30	.....	39.49
LOUISVILLE FERTILIZER CO., Nashville, Tenn.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Eagle High Grade Guano.....	6.50	3.50	10.00	1.65	2.00	204C	27708	8.10	1.56	9.56	1.45	2.60	29.96
Bear Beef Blood & Bone.....	6.50	3.50	10.00	1.65	2.00	101A	27628	6.50	4.46	11.10	1.36	1.68	33.73
.....	.....	.....	.....	.....	.....	10C	27455	7.75	4.91	12.66	1.66	1.92	39.27
Bear Special Guano.....	7.00	4.00	11.00	1.65	1.00	156C	27660	7.90	4.44	12.34	1.72	1.71	38.21
MUSCOGEE GUANO CO., Columbus, Ga.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Old Indian Fish Fertilizer.....	7.00	3.00	10.00	1.65	2.00	86A	27613	6.05	4.51	10.56	1.94	2.13	39.40
.....						54B	27398	6.90	4.02	10.92	1.58	2.67	40.02
Muscogee Chief	6.50	2.50	9.00	1.65	3.00	23B	27263	3.55	6.58	10.13	1.86	3.12	43.17

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MUTUAL GUANO CO., Ozark, Ala.													
Farmer's Perfect Guano.....	6.00	4.00	10.00	1.65	2.00	48B	27392	7.35	3.52	10.87	1.64	1.80	36.03
Pride of Dale Guano.....	7.00	5.00	12.00	1.65	.25	47B	27391	11.65	2.66	14.31	1.51	.52	33.50
MORRIS FERTILIZER CO., Montgomery, Ala.													
Morris' Bold Bond 9-3-3.....	7.00	2.00	9.00	2.47	3.00	35A	27562	5.80	3.58	9.38	2.38	2.38	42.17
Morris Gold Bond 10-2-2.....	8.00	2.00	10.00	1.65	2.00	29A	27556	7.35	3.25	10.60	1.73	2.15	38.04
.....						81B	27437	8.40	2.84	11.24	1.75	2.22	39.44
Morris Gold Bond 12-2-0.....	10.00	2.00	12.00	3.30		30A	27557	9.60	3.60	13.20	1.75		31.08
.....						123C	27486	9.70	3.69	13.20	2.00		33.15
Morris Gold Bond 11-3-0.....	9.00	2.00	11.00	2.47		187C	27682	8.10	4.32	12.42	1.74		29.92
Morris Supreme 10-2-4.....	8.00	2.00	10.00	1.65	4.00	30B	27270	8.15	2.52	10.67	1.85	4.01	48.31
Morris Supreme 10-2-2.....	8.00	2.00	10.00	1.65	2.00	32B	27272	7.90	3.31	11.21	1.66	1.97	37.49
Morris Supreme 12-2-0.....	10.00	2.00	12.00	1.65		124C	27487	11.27	3.70	14.95	2.10		36.05
Morris Supreme 11-3-0.....	9.00	2.00	11.00	2.47		122C	27485	9.95	3.57	13.52	2.60		37.65

Morris Supreme 10-4-0	8.00	2.00	10.00	15.00	31B 27271	8.45	2.68	11.13	3.48	.46	37.94
NITRATE AGENCIES CO., New Orleans, La.				15.00	205C 27709				15.69		
N. A. C. Grand Nitrate of Soda											
PIEDMONT FERTILIZER CO., Opelika, Ala.											
Peafowl 16% Acid			16.00		38A 27565	14.30	3.63	17.93			25.10
Peafowl Guano 12-2-0			12.00	1.65	39A 27566	9.25	2.75	12.00	1.75		29.40
Peafowl Guano 12-3-0			12.00	2.47	40A 27567	9.45	2.51	11.96	2.58		35.32
Peafowl Guano 10-2-2			10.00	1.65	37A 27564	8.10	2.64	10.74	1.64	2.36	28.65
PURITY FERTILIZER CO., Greenville, Ala.											
Purity Blood, Bone & Meal 10-2-2	6.67	3.33	10.00	1.65	64F 27299	8.87	2.48	11.35	1.70	2.58	41.03
Purity Fertilizer 11-2-1	7.34	3.66	11.00	1.65	32F 27242	7.25	4.12	11.37	1.80	1.94	38.58
					63F 27298	10.20	.84	11.04	1.80	1.58	36.30
Purity Blood & Bone 11-2-1	7.34	3.66	11.00	1.65	66F 27423	10.85	3.86	14.71	1.82	1.67	42.04
Purity Fertilizer Meal Ammonia 12-2-0	8.00	4.00	12.00	1.65	61F 27296	11.80	1.30	13.10	1.73		30.80
Purity Blood & Bone 12-2-0	8.00	4.00	12.00	1.65	65F 27422	13.00	3.40	16.40	1.78		35.78
Purity H. G. Acid Phosphate	10.67	5.33	16.00		62F 27297	13.80	3.45	17.25			24.15
PLANTERS CHEMICAL AND OIL CO., Talladega, Ala.											
Uncle Sam H. G. Ammoniated Guano			10.00	1.65	93A 27620	10.10	3.24	13.34	1.96	1.80	41.79
Uncle Sam Extra H. G. Acid Phosphate			16.00		76A 27603	8.90	5.06	13.96		0.37	21.39
Uncle Sam H. G. Blood & Bone Guano			10.00	1.65	70A 27597	7.45	5.63	13.08	1.99	1.82	41.74
Uncle Sam H. G. Blood & Bone Guano			12.00	1.65	69A 27596	6.70	4.70	11.40	2.23		32.02

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Uncle Sam H. G. Ammoniated Guano.....			12.00	1.65		94A	27621	7.95	3.64	11.59	2.36		33.22
Uncle Sam H. G. Blood, Bone & Meal Guano.....			10.00	1.65	2.00	75A	27602	10.95	4.36	15.31	1.32	1.23	37.08
PEOPLE'S FERTILIZER CO., Bay Minette, Ala.													
People's High Grade Acid Phosphate.....	12.00	4.00	16.00			12F	27222	13.47	3.56	17.03			23.84
Meal Mixture Guano.....	8.50	3.00	11.50	1.65	.50	10F	27220	6.25	6.18	12.43	1.97	0.81	35.63
People's Standard Guano.....	7.00	3.00	10.00	1.65	2.00	6C	27452	1.75	8.57	11.32	1.85	1.83	38.32
.....						11F	21221	9.00	2.38	11.38	1.79	2.08	32.22
People's Favorite Guano.....	6.00	2.00	8.00	2.47	3.00	5C	27451	3.60	5.71	9.31	2.62	3.38	48.79
Live Hickory Guano.....	7.00	2.00	9.00	2.47	2.00	18F	27228	5.52	5.07	10.59	2.59	2.26	44.78
ROANOKE GUANO CO., Roanoke, Ala.													
High Grade Acid. Phosphate.....			16.00			3A	27530	15.40	2.21	17.61			24.65
Knight's Special.....			10.00	1.65	2.00	1A	27528	9.25	2.87	12.12	1.76	1.87	38.99
Randolph Guano.....			12.00	1.65		4A	27531	11.55	2.42	13.97	1.92		33.38

Zachry's Special	12.00	2.47	.....	32A 27559	9.10	3.70	12.80	3.52	.....	43.34
Roanoke Guano	11.00	2.47	.....	2A 27529	7.10	4.88	11.98	2.12	.46	34.33
READ PHOSPHATE CO., Nashville, Tenn.										
Farmer's Special Manure.....	10.00	2.00	12.00	106C 27367	8.30	5.78	14.08	1.60	.....	31.23
Favorite Cotton Grower.....	8.00	2.00	10.00	81A 27608	6.70	3.55	10.25	1.80	1.53	34.96
.....	.....	.....	.....	86C 27347	5.70	5.41	11.11	1.93	2.73	43.10
Read Red Diamond Special.....	8.00	2.00	10.00	87C 27348	6.30	5.25	11.55	2.16	2.55	44.47
High Grade Bone & Potash.....	10.00	2.00	12.00	80A 27607	7.35	9.22	16.57	.....	1.45	30.45
.....	.....	.....	.....	89C 27350	7.75	4.91	12.66	.....	1.60	25.72
Special High Grade Acid Phosphate.....	14.00	2.00	16.00	88C 27349	5.96	6.28	11.24	1.65	3.02	42.72
Special High Grade Guano.....	8.00	2.00	10.00	105C 27366	9.85	6.02	15.87	.....	.....	22.22
RAINBOW GUANO CO., Montgomery, Ala.										
Rainbow 10-2-2 Fertilizer.....	6.67	3.33	10.00	84A 27611	5.85	4.61	10.46	1.75	2.20	38.25
.....	.....	.....	.....	53C 27314	8.30	2.63	10.93	1.81	2.40	40.33
Rainbow 12-2-0 "4 in 1".....	8.00	4.00	12.00	74C 27335	10.20	1.96	12.16	1.99	.....	31.35
.....	.....	.....	.....	54F 27289	10.55	2.45	13.00	1.90	.....	31.88
Rainbow 16% Acid.....	10.67	5.33	16.00	87A 27614	14.85	2.21	17.06	.....	.....	23.88
.....	.....	.....	.....	73C 27334	15.25	2.12	17.47	.....	.....	24.46
Red Seal 12-2-0 Fertilizer.....	8.00	4.00	12.00	177C 27681	10.00	3.22	13.22	1.98	.....	32.77
Red Seal 10-2-2 Fertilizer.....	6.67	3.33	11.00	176C 27680	4.95	5.61	10.56	2.08	2.17	46.01
T. H. ROBINSON, Fayette, Ala.										
Fayette Extra High Grade Phosphate.....			16.00	137C 27499	12.35	4.04	16.39			22.95

ANNUAL FERTILIZER REPORT

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	Water Soluble.	Citrate Soluble.	Total Available Phos. Acid.	Nitrogen.	Potash.			Water Soluble.	Citrate Soluble.	Total Available Phos. Acid.	Nitrogen.	Potash.	Commercial Value.
Fayette Meal & Phosphate Mixture.....	.....	.....	12.00	1.65	.50	136C	27498	11.20	2.83	14.03	2.24	.....	35.77
Fayette High Grade Guano.....	.....	.....	10.50	2.47	.75	135C	27497	8.35	2.80	11.15	2.84	1.95	45.81
F. S. ROYSTER GUANO CO., Montgomery, Ala.													
Royster's Volley Brand Ammoniated Mixture.....	8.25	3.75	12.00	1.65	.....	54A	27581	10.40	3.04	13.44	1.61	.....	30.41
Royster's Target Ammoniated Mixture.....	7.50	3.50	11.00	2.47	.....	115C	27376	10.80	2.82	13.62	1.64	.....	30.88
Royster's Biplane Fertilizer.....	7.50	3.50	11.00	1.65	1.00	13F	27223	8.87	3.09	11.96	2.15	1.48	33.23
Farmer's Bone Fertilizer.....	7.00	3.00	10.00	1.65	2.00	26A	27553	7.80	3.71	11.51	1.77	2.10	39.35
Gold Dust Ammoniated Guano.....	7.00	3.00	10.00	1.65	2.00	117C	27378	7.15	3.91	11.06	1.83	1.88	38.06
Viking Ammoniated Guano.....	6.00	3.00	9.00	1.65	3.00	25A	27552	6.95	3.82	10.77	1.73	2.18	38.44
Royster's Piedmont Special for Cotton.....	6.00	3.00	9.00	2.47	3.00	2C	27449	4.45	5.84	10.79	1.93	3.15	44.76
Marlboro High Grade Cotton Grower.....	5.00	3.00	8.00	2.47	3.00	33A	27560	4.10	5.53	9.63	2.64	3.77	51.34
.....	.....	.....	.....	.....	.....	52A	27576	5.50	4.21	9.71	2.03	2.79	42.16
.....	.....	.....	.....	.....	.....	3C	27450	3.80	4.82	8.72	2.89	2.96	47.82

Royster's Bone & Potash Mixture No. 122.....	8.25	3.75	12.00	.....	2.00	72A 27599	8.15	4.73	12.88	.....	2.54	39.43
.....	.....	.....	.....	.....	.....	116C 27377	8.75	4.50	13.25	.....	2.02	28.65
Royster's Bone & Potash Mixture No. 104.....	7.00	3.00	10.00	.....	4.00	152C 27656	5.20	6.21	11.41	.....	3.50	33.47
.....	.....	.....	.....	.....	.....	14F 27224	4.50	6.88	11.38	.....	4.29	37.38
Royster's High Grade 16% Acid Phosphate.....	11.00	5.00	16.00	.....	.....	149C 27653	13.55	3.37	16.92	.....	.....	23.69
.....	.....	.....	.....	.....	.....	38F 27248	12.00	4.63	16.63	.....	.....	23.28
ROME FERTILIZER CO., Rome, Ga.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cherokee 10-2-2.....	.....	.....	10.00	1.65	2.00	104A 27631	7.50	2.28	9.78	1.90	2.63	40.52
ROBBINS & MCGOWIN CO., Brewton, Ala.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
R. McG. 12-1-1.....	.....	.....	12.00	0.825	1.00	22F 27232	9.95	4.19	4.14	1.01	1.76	35.87
R. McG. 9-2-3.....	.....	.....	9.00	1.65	3.00	23F 27233	4.87	6.06	10.93	1.91	2.75	42.80
R. McG. 10-2-2.....	.....	.....	10.00	1.65	2.00	24F 27234	5.77	5.52	11.29	1.85	2.26	40.43
R. McG. 16% Phosphate.....	.....	.....	16.00	.....	.....	25F 27235	14.45	2.77	17.22	.....	.....	24.11
ROBERT NEWMAN, Abbeville, Ala.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Newman's High Grade Peanut Guano.....	.....	.....	12.00	1.65	0.25	120B 27735	11.15	2.69	13.84	1.64	0.53	33.84
SWIFT & CO. FERTILIZER WORKS, Atlanta, Ga.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Special High Grade Acid Phosphate.....	13.00	3.00	16.00	.....	.....	23A 27550	13.95	2.87	16.82	.....	.....	25.55
.....	.....	.....	.....	.....	.....	155C 27659	15.40	2.51	17.91	.....	.....	25.07
Eagle Guano.....	8.00	2.00	10.00	1.65	2.00	68A 27595	8.90	2.41	11.31	1.86	2.32	40.82
.....						151C 27655	6.90	4.01	10.91	1.66	3.54	44.92

ANNUAL FERTILIZER REPORT

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	Water Soluble.	Citrate Soluble.	Total Available Phos. Acid.	Nitrogen.	Potash.	Department Number.	Laboratory Number.	Water Soluble.	Citrate Soluble.	Total Available Phos. Acid.	Nitrogen.	Potash.	Commercial Value.		
Ammoniated Phosphate	10.00	2.00	12.00	1.65	.....	29B	27629	8.15	4.57	12.72	1.72	.45	32.42		
.....	.....	.....	.....	.....	.....	43B	27387	11.40	2.83	14.23	1.64	.....	31.73		
Swift's Farmer's Home	8.00	2.00	10.00	.....	4.00	120A	27647	6.95	5.40	12.35	.....	2.96	32.09		
.....	.....	.....	.....	.....	.....	154C	27658	7.25	2.63	9.88	.....	2.78	27.73		
Swift's Farmer Favorite	7.00	2.00	9.00	1.65	3.00	121B	27736	7.10	3.02	10.12	1.75	3.58	44.67		
Swift's Ammoniated Phosphate	10.00	2.00	12.00	2.47	.....	91A	27618	9.75	3.52	13.27	2.60	.....	37.30		
STANDARD CHEMICAL & OIL CO., Troy, Ala.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....		
Hume's Ammoniated Dissolved Bone	8.00	2.00	10.00	1.65	2.00	108B	27523	10.90	2.43	13.33	1.24	2.10	38.09		
Extra Pure Acid Phosphate	14.00	2.00	16.00	.....	.....	5B	27204	13.20	3.21	16.41	.....	.....	22.97		
.....	.....	.....	.....	.....	.....	14B	27254	13.15	2.73	15.18	.....	.....	22.33		
SOUTH ATLANTIC GUANO CO., Atlanta, Ga.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....		
South Atlantic 10-2-2	8.00	2.00	10.00	1.65	2.00	120C	27381	7.65	3.23	10.88	1.78	1.60	36.05		
.....	.....	.....	.....	.....	.....	52F	27287	8.20	2.81	11.01	1.73	2.19	38.82		
South Atlantic 11-2-1	9.00	2.00	11.00	1.65	1.00	119C	27380	9.15	3.14	12.29	1.67	1.15	34.98		

South Atlantic 12-2-0.....	10.00	2.00	12.00	1.65	.....	51F 27286	9.20	3.57	12.77	1.60	.....	29.40
South Atlantic 16% Acid Phosphate.....	14.00	2.00	16.00	.....	.....	106B 27521	6.10	4.86	10.96	1.68	.....	27.90
South Atlantic 10-2-2.....	8.00	2.00	10.00	1.65	2.00	50F 27285	13.62	3.13	16.75	.....	.....	23.45
SOUTHERN COTTON OIL CO., Montgomery, Ala.						63B 27407	7.05	3.11	10.16	1.82	1.95	37.07
High Grade Fertilizer.....			10.00	1.65	2.00	174C 27678	6.55	4.07	10.62	1.67	2.11	34.43
Gilt Edge Fertilizer.....			12.00	1.65	.....	199C 27703	8.00	2.98	10.98	1.65	2.53	39.85
Pure Gold Mixture.....			11.00	2.47	.....	175C 27679	10.45	2.93	13.38	2.03	.....	33.50
Bone & Potash Compound.....			12.00	.....	2.00	6F 27216	9.82	2.91	12.73	1.79	.....	30.71
Special Acid Phosphate.....			16.00	.....	.....	24B 27264	9.15	2.27	11.42	2.72	0.81	39.62
SCOCO Fish Guano.....			12.00	1.65	.....	36B 27276	9.65	3.43	13.08	2.24	0.81	38.49
SCOCO Blood & Bone.....			12.00	1.65	.....	198C 27702	5.65	7.93	13.55	.....	1.92	28.61
Special Potash Acid.....			10.00	.....	4.00	27B 27267	10.90	1.66	12.56	.29	1.96	29.48
Alabama Plow Boy Fertilizer.....			10.00	1.65	2.00	61C 27322	13.05	2.78	15.83	.....	.....	22.16
SESSIONS FERTILIZER CO., Enterprise, Ala.				.....	.....	26B 27266	14.55	2.98	17.53	.....	.....	24.54
Sessions Farmer's Perfect Mixture.....			12.00	1.65	.....	34B 27274	10.50	2.84	13.34	1.68	0.60	33.78
			10.00	.....	4.00	37B 27277	10.85	2.37	13.22	1.90	0.50	35.04
			10.00	1.65	2.00	25B 27265	6.25	3.87	10.12	.....	3.75	32.91
			10.00	1.65	2.00	60C 27321	8.50	2.00	10.50	1.53	2.18	36.62
			12.00	1.65		200C 27704	9.30	2.16	11.46	1.25	2.24	36.24
			12.00	1.65	.50	49B 27393	11.40	2.51	13.91	1.77	.49	34.66

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	Water Soluble.	Citrate Soluble.	Total Availabale Phos. Acid.	Nitrogen.	Potash.			Water Soluble.	Citrate Soluble.	Total Availabale Phos. Acid.	Nitrogen.	Potash.	(Commercial Value.
Sessions Blood & Bone			12.00	1.65	.50	50B	27394	10.65	2.38	13.03	1.61	.....	29.83
TUSCALOOSA COTTON SEED OIL CO., Tuscaloosa, Ala.			10.00	1.65	2.00	16C	27461	8.58	3.57	12.15	1.83	1.86	39.49
Tuscaloosa Guano						76F	27433	8.75	3.61	12.36	1.83	1.81	38.53
Tuscaloosa Acid Phosphate			16.00			17C	27462	15.05	1.47	16.52	.....	.....	23.13
Tuscaloosa Meal Mixture			12.00	1.65		15C	27460	10.70	3.64	14.34	1.84	.....	33.33
						75F	27432	10.60	3.74	14.34	1.72	.....	22.46
TENNESSEE CHEMICAL CO., Nashville, Tenn.													
Ox Slaughter House Bone	6.50	3.50	10.00	1.65	2.00	90A	27617	1.60	3.56	10.16	1.86	1.81	36.66
						85C	27346	7.00	3.87	10.87	1.89	1.94	38.53
Ox Special Guano	7.00	4.00	11.00	1.65	1.00	82C	27343	7.95	3.25	11.20	1.81	1.05	33.96
Ox Crop Grower	8.00	4.00	12.00	1.65		89A	27616	7.92	4.29	12.21	1.84		30.34
						83C	27344	8.22	4.83	13.05	1.63		30.01

ANNUAL FERTILIZER REPORT

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	Water Soluble.	Citrate Soluble.	Total Available Phos. Acid.	Nitrogen.	Potash.			Water Soluble.	Citrate Soluble.	Total Available Phos. Acid.	Nitrogen.	Potash.	Commercial Value.
Bullock Ammoniated Phosphate.....	7.00	5.00	12.00	1.65	.....	7B	27206	10.00	2.64	12.64	2.12	.51	35.51
Bullock's Ammoniated Phosphate.....	6.00	5.00	11.00	2.46	.....	9B	27208	9.95	2.28	12.23	2.79	.43	39.36
Bullock Ammoniated Phosphate.....	6.00	4.00	10.00	3.30	.....	8B	27207	8.97	2.34	11.31	3.49	.61	43.84
Bullock High Grade Phosphate.....	9.00	7.00	16.00	.....	.....	11B	27210	14.25	2.56	16.81	.....	.....	23.52
VIRGINIA CAROLINA CHEMICAL CO., Montgomery, Ala., and Other Points.													
Big Winner High Grade Dissolved Bone.....	14.00	2.00	16.00	.....	.....	38C	27483	12.90	4.74	17.64	.....	.....	24.70
Peruvian Cotton Grower.....	8.00	2.00	10.00	1.65	2.00	31C	27476	8.65	3.15	11.80	2.04	2.51	43.76
						168C	27672	9.50	3.36	12.86	1.49	2.29	40.03
Mobile Special Formula.....	7.00	2.00	9.00	2.47	2.00	19F	27229	6.60	3.87	10.47	3.42	2.19	50.23
Twentieth Century Guano.....	9.00	2.00	11.00	1.65	1.00	49C	27310	7.57	4.07	11.64	1.88	1.45	37.09
V.-C. Big Giant Guano.....	9.00	2.00	11.00	1.65	1.00	99A	27626	10.50	2.94	13.44	1.76	1.16	37.29
V.-C. Fish Mixture.....	9.00	2.00	11.00	1.65	1.00	33C	27478	9.00	3.62	12.62	2.19	1.59	41.39
Scott's Gossypium Phosphate.....	8.00	2.00	10.00	1.65	2.00	98A	27625	6.85	3.54	10.39	3.01	1.85	45.47
						34C	27479	7.90	4.23	12.13	2.26	1.88	42.65
V.-C. Special High Grade Fertilizer.....	8.00	2.00	10.00	1.65	2.00	88A	27615	7.45	3.50	10.95	2.19	2.13	41.75

XXX Blood & Bone Guano.....	8.00	2.00	10.00	1.65	2.00	50C|27311	8.32	3.50	11.82	1.87	2.22	41.05
Sea Gulf Soluble Guano.....	8.00	2.00	10.00	1.65	2.00	57C|27318	7.90	2.85	10.75	1.98	2.35	41.06
Georgia State Grange Fertilizer.....	8.00	2.00	10.00	1.65	2.00	61A|27588	10.30	2.96	13.26	1.65	0.83	34.59
V.-C. Acid & Meal Mixture.....	10.00	2.00	12.00	1.65	.....	45A|27572	10.60	3.12	13.72	1.76	.....	31.88
.....	.....	.....	.....	.....	.....	4F|27214	10.55	2.83	13.38	1.75	.....	31.33
Scott's Blood Formula.....	10.00	2.00	12.00	1.65	.....	62A|27589	11.10	2.45	13.55	1.76	.....	31.64
.....	.....	.....	.....	.....	.....	5F|27215	10.70	2.14	12.84	2.10	.....	33.11
V.-C. Blood, Meal & Fish Mixture.....	10.00	2.00	12.00	1.65	.....	164C|27668	9.15	4.09	13.24	2.11	.....	33.73
Edisto Extra High Grade Phosphate.....	14.00	2.06	16.00	.....	.....	48C|27309	12.20	4.67	16.87	.....	.....	23.62
.....	.....	.....	.....	.....	.....	7F|27217	14.15	3.34	17.49	.....	.....	24.49
V.-C. High Grade Dissolved Bone.....	14.00	2.00	16.00	.....	.....	44A|27571	15.40	3.44	16.84	.....	.....	26.38
.....	.....	.....	.....	.....	.....	66C|27327	13.07	4.22	17.29	.....	.....	24.21
I. X. L. High Grade Acid Phosphate.....	12.00	2.00	14.00	.....	.....	8F|27218	12.92	3.43	16.35	.....	.....	22.89
Scott's High Grade Acid Phosphate.....	12.00	2.00	14.00	.....	.....	16B|27256	14.55	2.36	16.91	.....	.27	25.02
Superior Potash Compound.....	8.00	2.00	10.00	.....	4.00	100A|27627	8.10	5.30	13.40	.....	2.56	31.66
V.-C. High Grade Fish Guano.....	8.00	2.00	10.00	1.65	2.00	55C|27316	7.90	3.84	11.74	1.50	2.30	38.74
.....	.....	.....	.....	.....	.....	45F|27280	9.27	2.79	12.06	1.82	1.82	39.08
V.-C. Gulf Coast Mixture.....	6.00	2.00	8.00	2.47	3.00	19B|27259	7.30	3.21	10.51	2.24	2.99	45.79
V.-C. Special Bone & Potash Compound.....	10.00	2.00	12.00	.....	2.00	163C|27667	8.10	5.40	13.50	.....	2.47	31.25
V.-C. High Grade Ammoniated Bone.....	9.00	2.00	11.00	2.47	.....	44F|27279	10.90	2.69	13.59	2.25	.....	35.23
Corn and Potash Special.....	7.00	2.00	9.00	1.65	3.00	54C|27315	5.72	4.80	10.52	2.05	3.05	44.74
WARRIOR FERTILIZER CO., Northport, Ala.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
High Grade Acid Phosphate.....	12.00	4.00	16.00			12C 27457	13.75	4.74	18.49			25.89
.....						211C 27711	14.55	3.73	18.28			25.59

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UNIVERSITY OF ILLINOIS

DEC 8

STATE OF ALABAMA
AGRICULTURE AND INDUSTRIES DEPARTMENT
BULLETIN

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M. C. ALLGOOD, COMMISSIONER

ALFALFA GROWING
IN ALABAMA

By

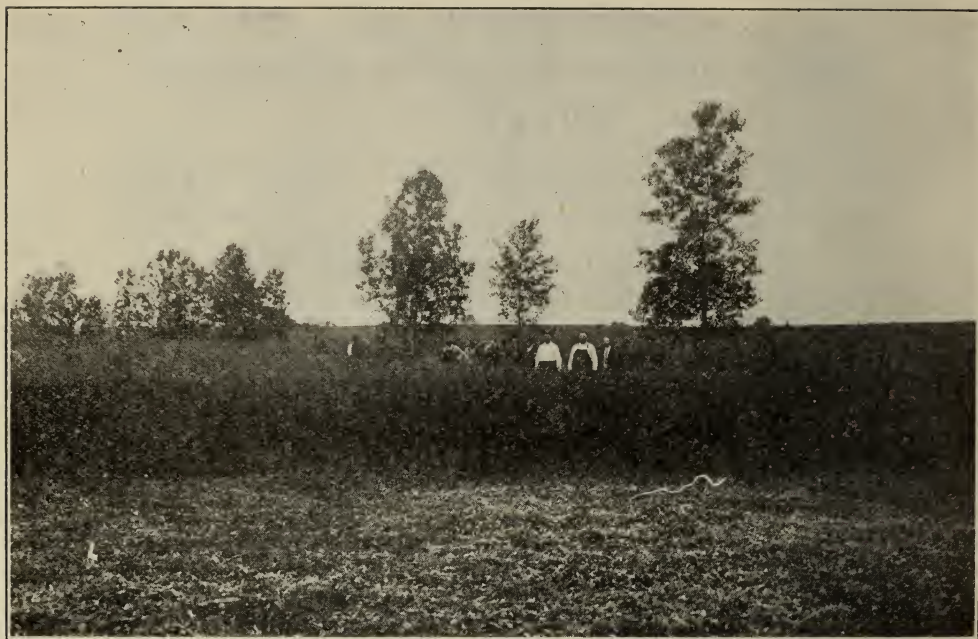
I. T. Quinn, Supervisor Division Fertilizers



DEPARTMENT BULLETIN No. 11

Entered as second-class matter, June 17th, 1907, at the postoffice in
Montgomery, Ala., under act of Congress, June 6, 1900.

This Bulletin will be sent free to any citizen of Alabama on appli-
cation to Commissioner of Agriculture and Industries.



1. AN ALFALFA SCENE IN DEMOPOLIS SECTION.



3. ALFALFA IS FAST BECOMING ONE OF ALABAMA'S GREAT MONEY CROPS.

ALFALFA GROWING IN ALABAMA



ALFALFA has a wonderful adaptability to a wide range of climate and conditions. With respect to climate, it can be grown in every state in the Union. In Colorado alfalfa grows abundantly at an altitude of from 6,000 to 8,000 feet above sea level while in the Southern portion of California it is produced below the sea level.

While alfalfa has not until recently taken a very prominent place among other crops grown in Alabama, it was demonstrated as far back as 1870 that certain sections of the State were adapted to this plant.

With the coming of the boll weevil and its subsequent devastation of the cotton fields of the State, the farmers began to look around for something that would take the place of cotton. It was necessary for a complete readjustment of the old system of farming so long practiced. The "one crop system" soon gave way to diversified farming. Many of the largest cotton planters turned their attention to live stock—dairying, beef cattle, and hog production. Cotton fields were converted into pastures and silos were constructed and forage and hay crops were planted.

It was not until about 1912 that very much attention was given to the growing of alfalfa. Since that time the acreage in this crop has grown very rapidly throughout central Alabama, the initial production being on the western side of the state around Demopolis, where the boll weevil first made its appearance. Acreage in this section as shown by figures gathered by the County Agent at Demopolis and shown in his annual report is as follows:

Acreage in Alfalfa prior to 1915.....	1840 acres
Planted in Spring of 1915.....	1878 acres
Planted in Spring of 1916.....	1714 acres
Planted in Fall of 1916.....	2000 acres
Planted in Spring of 1917.....	2281 acres
Planted in Spring of 1918.....	2136 acres
Planted in Spring of 1919 (One car seed)	

Total, not allowing for replants.....11489 acres.

The above figures indicate the popularity of alfalfa in that section of the State. A similar interest is being manifested by farmers in other counties in the lime sections of Alabama.

ALFALFA SOILS

A well limed, deep, fertile soil, well drained is absolutely necessary to a successful and profitable production of alfalfa. Alfalfa requires more lime than perhaps any other legume. To produce a maximum yield, the soil must be well drained. Alfalfa cannot stand "wet feet." The amount of alfalfa produced on a given area is in direct proportion to the fertility of the soil. Alfalfa being a deep feeding plant it is always best where possible to have a deep, permeable seed bed, otherwise the plant is unable to utilize the plant food deposited below the surface soil. Furthermore the lack of a deep soil forces the plant to fight for its existence against shallow rooted, surface feeding plants.

ALFALFA REQUIREMENTS

There are at least three elements that enter into the successful production of alfalfa, viz., lime, drainage, and fertility. In the lime counties of central Alabama which include all or a part of Marengo, Sumter, Pickens, Hale, Perry, Dallas, Wilcox, Lowndes, Montgomery, Macon, and Bullock, there is sufficient amount of lime to meet the demands of alfalfa for that element.

All or practically all the upland lime soils are naturally well drained so that except in rare instances is it necessary to resort to artificial drainage. While, also, some of the low lands are drained sufficiently well to produce alfalfa during the seasons of light rain fall, to insure permanent success it is found both practical and profitable to install a system of drainage. In that respect, however, it may be said that some low lands will be found to require more extensive drainage than others.

Some farmers have used the open ditch, while others are using tiling, the latter, in most instances, proving the more practical and economical.

INOCULATION

The soils in the lime belt of Alabama, like the alfalfa soils, of the west do not require artificial inoculation. The

soil in every instance so far as the writer's experience and observation extends is already charged with the proper bacteria. This, no doubt, is due to the fact that throughout the lime belt is found growing on every type of lime soil a luxuriant growth of melilotus which inoculates for alfalfa.

PREPARATION OF SEED BED

The land is usually broken broadcast with a two-horse turn plow, harrowed and re-harrowed with disc and section harrow until the soil is well pulverized. It is then allowed to settle. This is usually done during the months of December, January and February, provided alfalfa is to be seeded in the early spring.

YIELDS

In answer to a questionnaire sent out by the writer to a number of alfalfa growers throughout the State the question as to average yield per acre on each grower's farm was asked. These questionnaires went to men who are growing alfalfa on every type of lime soil. The lowest yield reported was two tons per acre while the highest yield was a fraction over six tons per acre. Sixty-seven percent reported yields above four tons, while twenty-two percent reported yields between three and four tons per acre and eleven percent reported yields ranging between two and three tons of alfalfa per acre.

TYPES OF SOIL

In growing alfalfa the type of soil should be thoroughly considered. The writer, both from experience and observation and also through information and data collected from County Agents and from men, farmers who are actually engaged in the growing of alfalfa, considers the following soil types adapted to alfalfa production in the order named:

- 1st. Trinity Clay or Houston Clay, tile drained.
- 2nd. Trinity Clay, well drained naturally.
- 3rd. Houston Clay, well drained naturally.

Alfalfa does well on almost any well-drained soil that is sufficiently supplied with lime, phosphorus and potash. These elements appear to be in abundance in the cen-

tral lime belt of the State where alfalfa has been tried out.

FALL SOWING

Fall sowing should be done August 15th to September 25th and seed bed always rolled before and after planting. The advantage of fall sowing over spring sowing is that the young plants get a good start in the fall free from weeds, and are better able the following spring to make vigorous and rapid growth and thus more successfully resist the intrusion of weeds and grasses that start early in the spring and that very often interfere with spring sown alfalfa. The young plants are very tender and feeble during the first four weeks. Therefore it is necessary to get the alfalfa in as early in the fall and give the young plants a good healthy growth before the first freezes come, which is usually in the latter part of December or early in January. Fall sown alfalfa gives a further advantage over spring sowing of yielding more cuttings the first year.

The chief draw backs to fall sowing of alfalfa are the following:

(1) The farmers are usually busy harvesting other crops and getting them ready for the market just at the time when seed bed should be prepared and sowing done.

(2) September and October are our months of lightest rain fall. Hence preparation and germination may not always be satisfactory.

(3) Growing crops may not be removed in time from lands on which it is desired to sow alfalfa.

SPRING SOWING

Spring sowing is done during the months of February, March and up until April 15th. The advantages of spring sowing over fall sowing of alfalfa are the following:

(1) Alfalfa sown during February will come on in time to crowd out early spring weeds and grasses so that three or four perfect cuttings can be made.

(2) Seed bed may be prepared during the winter months when the farmer has plenty of time and after all crops have been removed from those lands on which it is desired to sow.

(3) Labor that might otherwise be idle during part of the winter months may be utilized.

(4) Preparation of seed bed is not so difficult during the winter as in early fall, due to the fact that we have sufficient rainfall during winter to make "breaking" easy.

(5) Unfailing spring showers guarantees sufficient moisture for rapid germination and plant development.

RATE OF SOWING

The amount of seed sown per acre depends very largely upon the preparation of seed bed and the method of sowing.

Excellent stands are secured from twelve to fifteen pounds of seed per acre drilled where preparation is thorough. If the seed bed is not well prepared more seed are required.

Where seeds are sown broadcast with the hand, a method that is not generally practiced in this State, twenty to thirty pounds are required. If the broadcasting method is employed, the seed should be divided and "cross sowing" made.

TIME OF CUTTING

The number of cuttings, the quality and yield depends largely on time of cutting. Results obtained at the Kansas Experiment Station show that "with hay cut when one-tenth in bloom the protein content is 18.5 percent; when one-half in bloom, 17.2 per cent; and when in full bloom 14.4 per cent."

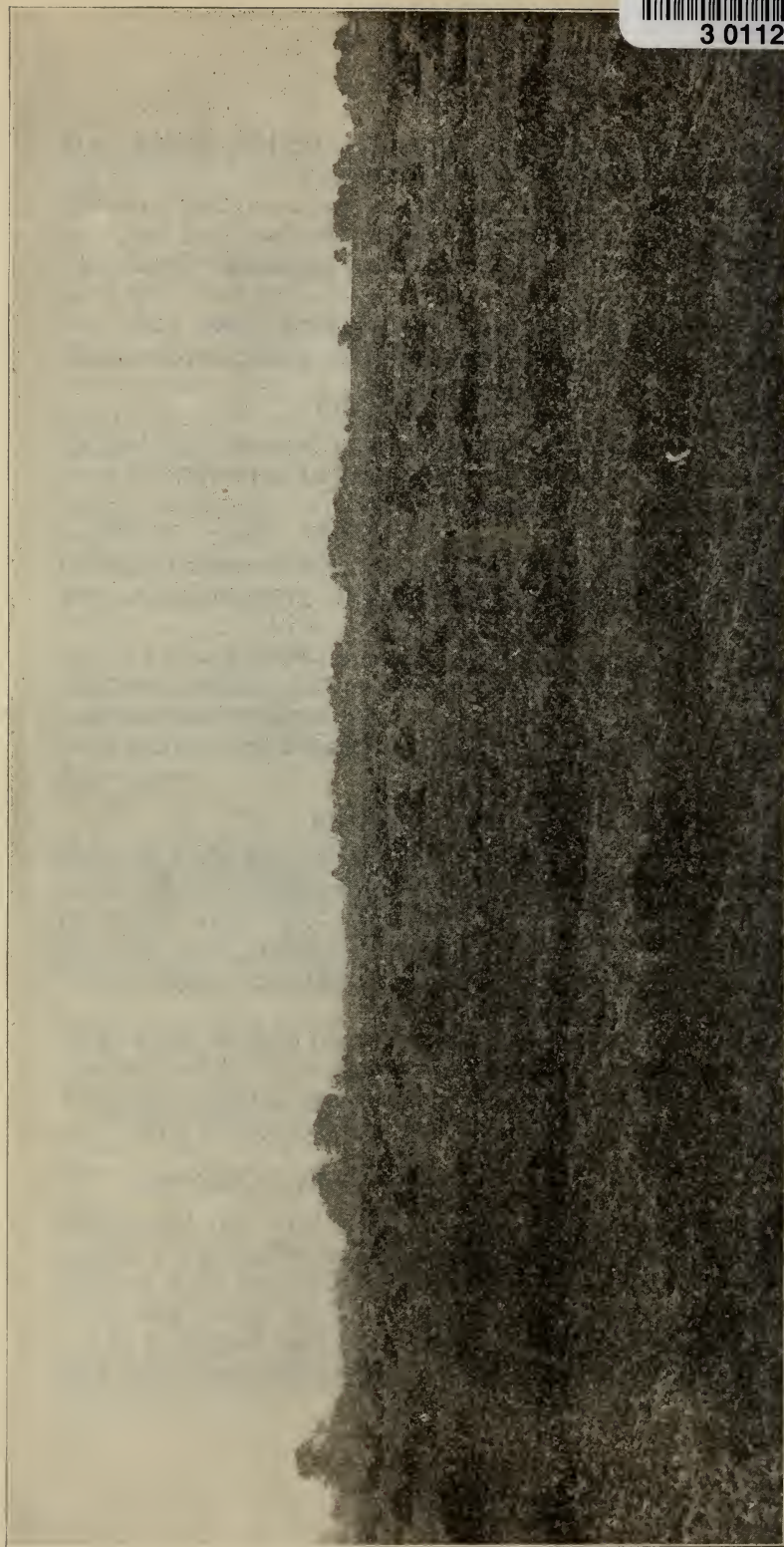
Time of cutting should be governed both by the blooming stage and the basil shoots. As soon as the basil shoots appear and the plant starts blooming cutting should be done in order to make way for the succeeding crop.

SUGGESTION TO PROSPECTIVE ALFALFA GROWERS

The State Department of Agriculture and Industries, realizing the growing importance of alfalfa as a money crop, both from the standpoint of hay and as a grazing crop for all classes of livestock, offers its assistance to farmers throughout the State in making tests and physical surveys for the purpose of discovering those soils best adapted to the growing of alfalfa.



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2. TYPICAL ALFALFA SCENE IN ALABAMA. BY COURTESY OF C. C. CLAY ALFALFA LAND COMPANY.